POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Department of Economics

ECON 307

MONETARY ECONOMICS

NORIE L. MANIEGO

MONETARY ECONOMICS

(ECON 307)

NORIE L. MANIEGO

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VISION

PUP: The National Polytechnic University

MISSION

Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities through a re-engineered polytechnic university by committing to:

- provide democratized access to educational opportunities for the holistic development of individuals with global perspective.
- offer industry-oriented curricula that produce highly-skilled professionals with managerial and technical capabilities and a strong sense of public service for nation-building.
- embed a culture of research and innovation.
- continuously develop faculty and employees with the highest level of professionalism.
- engage public and private institutions and other stakeholders for the attainment of social development goal.
- establish a strong presence and impact in the international academic community.

PHILOSOPHY

As a state university, the Polytechnic University of the Philippines believes that:

- Education is an instrument for the development of the citizenry and for the enhancement of nation-building; and,
- That meaningful growth and transformation of the country are best achieved in an atmosphere of brotherhood, peace, freedom, justice and nationalist-oriented education imbued with the spirit of humanist internationalism.

SHARED VALUES AND PRINCIPLES

1. Integrity and Accountability
2. Nationalism
3. Sense of Service
4. Passion for Learning and Innovation
5. Inclusivity
6. Respect for Human Rights and the Environment
7. Excellence
8. Democracy

GOALS OF THE COLLEGE

1. Foster humanism, nationalism and the preservation of cultural heritage.
2. Optimize academic excellence through the cultivation of the trifocal functions of the academe: instruction, research and extension.
3. Cultivate a sense of proactive involvement toward a nation-building and the preservation of democratic processes.
4. Utilize the social sciences in capacitating and engaging various stakeholders to address societal problems and attain social development.
5. Sustain disciplinal integrity while pursuing interdisciplinary and multidisciplinary approaches in the social sciences and development.
6. Establish linkages with stakeholders such as academic institutions, professional organizations, government and non-government organizations, the private sector and alumni for the improvement of the academic programs and services of the college.
7. Develop leadership and innovative skills among the faculty members and students in meeting the challenges that confront the various sectors of Filipino societies.

PROGRAM DESCRIPTION

The Bachelor of Science in Economics is an undergraduate program that aims to develop resilient and competitive professionals, who are socially aware, ethically conscious, knowledge equipped, skills-enhanced, and cognizant of the importance and application of economic theories and empirics of the decision-making process of various economic agents in relation to efficient utilization of scarce resources. The program strikes a balance between classroom-based and research-based activities in understanding the perplexities and complexities of socio-economic trends and issues anchored on contemporary economics employing modern technologies

COURSE DESCRIPTION

The course is designed as an introduction to monetary economics integrating such topics as the definition and history of money, theories of money, demand and supply, the instruments available to the monetary authorities to regulate the money supply, the consequences of monetary behavior or “misbehavior” on output, employment, price level, balance of payment, and growth in the long run.

INSTITUTIONAL LEARNING OUTCOMES (ILOS)

As a polytechnic state university, PUP shall develop its students to possess:

1. **Critical and Creative Thinking**. Graduates use their rational and reflective thinking as well

as innovative abilities to life situations in order to push boundaries, realize possibilities, and deepen their interdisciplinary, multidisciplinary, and/or transdisciplinary understanding of the world.

2. **Effective Communication.** Graduates apply the four macro skills in communication (reading, writing, listening, and speaking), through conventional and digital means, and are able to use these skills in solving problems, making decisions, and articulating thoughts when engaging with people in various circumstances.

3. **Strong Service Orientation.** Graduates exemplify a strong commitment to service excellence for the people, the clientele, the industry, and other sectors.

4. **Adept and Responsible Use or Development of Technology.** Graduates demonstrate optimized and responsible use of state-of-the-art technologies in their profession. They possess digital learning abilities, including technical, numerical, and/or technopreneurial skills.

5. **Passion for Lifelong Learning.** Graduates perform and function in society by taking responsibility in their quest for further improvement through lifelong learning.

6. **Leadership and Organizational Skills.** Graduates assume leadership roles and become leading professionals in their respective disciplines by equipping them with appropriate organizational skills.

7. **Personal and Professional Ethics.** Graduates manifest integrity and adherence to moral and ethical principles in their personal and professional circumstances.

8. **Resilience and Agility**. Graduates demonstrate flexibility and the growth mindset to adapt and thrive in the volatile, uncertain, complex, and ambiguous (VUCA) environment.

9. **National and Global Responsiveness.** Graduates exhibit a deep sense of nationalism as it complements the need to live as part of a global community where diversity is respected. They promote and fulfill various advocacies for human and social development.

PROGRAM LEARNING OUTCOMES (PLOS)

1. Demonstrate theoretical knowledge in economics and standard methods used in economic research, policy, plan, and program formulation.
2. Effectively communicate socio-economic arguments and research results in local, national, and international venues.
3. Show willingness to provide the possible best service by proactively engaging with industry/government institutions' present and future needs.
4. Establish the ability to diagnose economic problems using appropriate theories and methodologies.
5. Demonstrate hunger for more learning to be on top of their field or chosen specialization in economics, whether academically or in industry.
6. Exhibit strong leadership qualities in practical applications of essential research and analytical skills to effectively tackle real-world organizational challenges.

7. Demonstrate a deep commitment to high ethical standards especially in constituting, analyzing, and interpreting relevant economic data and findings.
8. Demonstrate readiness for various roles and responsibilities to keep up with new challenges brought about by the incredibly fast pace changing economic environment.
9. Demonstrate social and environmental concerns and inculcate responsible citizenship.

COURSE LEARNING OUTCOMES (CLOS).

At the end of this course, the students are expected to:

1. Demonstrate an understanding of the important role of money and the role of monetary process in the macroeconomy operations.
2. Acquire knowledge on financial system; its elements and the economic environment influencing it.
3. Demonstrate an understanding of the extent and limit of intervention by the monetary authorities on the economy.

Preface

The course is designed as an introduction to monetary economics, integrating such topics as the definition and history of money, theories of money, demand and supply, the instruments available to the monetary authorities to regulate the money supply, a large part of macroeconomics with an emphasis on monetary policy, central banking and financial institutions and financial markets. Also, it examines the important policy issues of the potential conflicts among policy makers, time-consistent versus discretionary monetary policies, and the credibility of monetary policy.

This, Instructional Material, is divided into eight (8) parts. Lesson 1 consists of the nature of monetary economics. It discusses the definition of money and its evolution to provide the reader with a flavor of the earlier literature on this subject. Lesson 2 focuses on the theories of demand for money while Lesson 3 emphasizes on the money supply process and the monetary policy. Lesson 4 focuses on the determination of interest rates whereas Lesson 5 presents Bangko Sentral ng Pilipinas and Philippine financial system. Lesson 6 discusses about the instruments and strategies of monetary policy. Lesson 7 shows the model of macroeconomic equilibrium with emphasis on the Classical and Keynesian theories while Lesson 8 examines the monetary policy issues.

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LESSON 1

THE NATURE OF MONETARY ECONOMICS

Learning Outcomes*: At the end of this chapter, students are expected to:*

1. *Discuss the functions and definition of money*
2. *Explain the origin and evolution of money*
3. *Establish a wide understanding in the relationship of prices of goods and services and value of money*

Definition of Monetary Economics

Monetary economics is the economics of the money supply, prices and interest rates, and their repercussions on the economy. It focuses on the monetary and other financial markets, the determination of the interest rate, the extent to which these influence the behavior of the economic units and the implications of that influence in the macroeconomic context. It also studies the formulation of monetary policy, usually by the central bank or "the monetary authority," with respect to the supply of money and manipulation of interest rates, in terms both of what is actually done and what would be optimal.

In a monetary economy, virtually all exchanges of commodities among distinct economic agents are against money, rather than against labor, commodities or bonds, and virtually all loans are made in money and not in commodities, so that almost all market transactions in a monetary economy involve money.

Definitions and Functions of Money

Money is not itself the name of a particular asset. Since the assets which function as money tend to change over time in any given country and among countries, it is best defined independently of the particular assets that may exist in the economy at any one time. Money facilitates the exchange of goods and services through its various functions, namely: (1) as a medium of exchange (2) a unit of account (3) as a store of value and (4) as a standard for deferred payments

- **Medium of exchange**

In a barter system, goods would be traded for other goods in transactions arranged on the basis of mutual need. But with the presence of money, it eliminates the need for the double coincidence of wants. Money as a medium of exchange is used for buying and selling goods and services. The presence of money promotes economic efficiency by reducing the amount of time of exchanging goods and services.

- **Unit of account**

Money serves as the unit at which goods are valued in terms of a given currency. The value of money is expressed in terms of a monetary unit for example the peso. The advantage of using money as a unit of account is that trade becomes fair since the value of goods is measured in term of a monetary unit. The value of goods and services in the Philippines is measured in terms of a given price per unit of measurement, such as P175.00 per kilo of chicken and P15.00 for a LRT ride from Monumento to Baclaran.

- **Store of value**

As a store of value, money is used to transfer purchasing power over time the purchasing power of money is measured in the terms of the quantity of goods that it can buy. Is money a good store of value? Money is a good store of value if its purchasing power is stable is stable while its value declines during inflation. During inflation people hold other assets such as stocks, bonds, land and jewelry that can function as a store of value rather than money.

- **Standard for deferred payments**

Money enables people to buy goods on credit. Goods and services can be obtained at the present time in exchange for a promise to pay at a future date. Money becomes the basis for goods and services are paid on installment basis.

History of Philippine Money

1. Pre-Hispanic Era

Trade among the early Filipinos and with traders from the neighboring islands was conducted through barter. The inconvenience of barter later led to the use of some objects as medium of exchange. Gold, which was plentiful in many parts of the islands, invariably found its way into these objects that included the piloncitos, small bead-like gold bits.

2. Spanish Era (1521-1897)

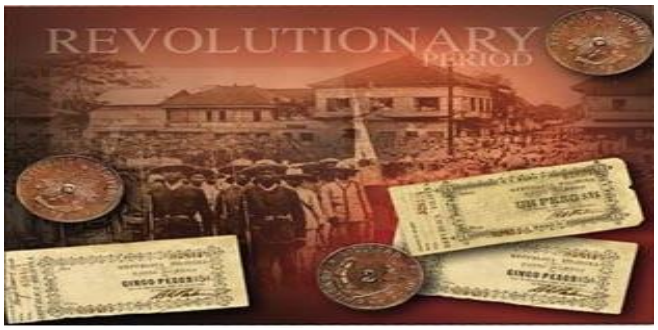
Three hundred years of Spanish rule left many indelible imprints. At the end of the Spanish regime, Philippine money was a multiplicity of currencies that included Mexican pesos, Alfonsino pesos and copper coins of other currencies.

The macuquinas of colonial mints were the earliest coins brought in by the galleons from Mexico and other Spanish colonies. The silver dos mundos or pillar dollar is considered one of the

world's most beautiful coins. The barilla, a crude bronze or copper coin worth about one centavo, was the first coin struck in the country.

Coins from other Spanish colonies also reached the Philippines and were counter stamped. Gold coins with the portrait of Queen Isabela were minted in Manila. Silver pesos with the profile of young Alfonso XIII were the last coins minted in Spain. The pesos fuertes, issued by the country's first bank, the El Banco Espanol Filipino de Isabel II, were the first paper money circulated in the country.

3. Revolutionary Period (1898-1899)



Asserting its independence, the Philippine Republic of 1898 under General Emilio Aguinaldo issued its own coins and paper currency backed by the country's natural resources.

One peso and five peso notes printed as Republika Filipina Papel Moneda de Un Peso and Cinco Pesos were freely circulated. 2 centimos de peso copper were also issued in 1899.

4. The American Period (1900-1941)

The Americans instituted a monetary system for the Philippine based on gold and pegged the Philippine peso to the American dollar at the ratio of 2:1. The US Congress approved the Coinage Act for the Philippines in 1903.

The coins issued under the system bore the designs of Filipino engraver and artist, Melecio Figueroa. Coins in denomination of one-half centavo to one peso were minted. The renaming of El Banco Espanol Filipino to Bank of the Philippine Islands in 1912 paved the way for the use of English from Spanish in all notes and coins issued up to 1933. Beginning May 1918, treasury certificates replaced the silver certificates series, and a one-peso note was added.

5. The Japanese Occupation (1942-1945)

The outbreak of World War II caused serious disturbances in the Philippine monetary system. Two kinds of notes circulated in the country during this period. The Japanese Occupation Forces issued war notes in big denominations. Provinces and municipalities, on the other hand, issued their own guerrilla notes or resistance currencies, most of which were sanctioned by the Philippine government in-exile, and partially redeemed after the war.

6. The Philippine Republic

Having gained independence from the United States following the end of World War II, the country used as currency old treasury certificates overprinted with the word “Victory”.

With the establishment of the Central Bank of the Philippines in 1949, the first currencies issued were the English series notes printed by the Thomas de la Rue & Co., Ltd. in England and the coins minted at the US Bureau of Mint. The Filipinazation of the Republic coins and paper money began in the late 60’s and is carried through to the present.

In the 70’s, the Ang Bagong Lipunan (ABL) series notes were circulated, which were printed at the Security Printing Plant starting 1978. A new wave of change swept through the Philippine coinage system with the flora and fauna coins initially issued in 1983. These series featured national heroes and species of flora and fauna.

The new design series of banknotes issued in 1985 replaced the ABL series. Ten years later, a new set of coins and notes were issued carrying the logo of the Bangko Sentral ng Pilipinas.

Prices and the Value of Money

Money may be affected by the price level because the "value of money is fixed in terms of the price level". If prices increase, the value of money will decline, which means that the cost of holding one's cash or money will mean fewer goods that can be bought after the price increase. Conversely, when the price level falls, money can buy more and its purchasing power has gone up. Thus, the value of money changes inversely with the price level.

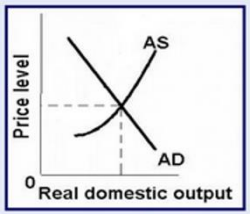
Changes in the price level are caused by two factors: (a) changes in the supply of money, and (b) changes in the supply of goods and services.

When the quantity of money in circulation increases, more money is available to the people for making purchases, the demand for goods and services goes up and the price level tends to rise. Conversely, if the supply of money decreases people can buy less and the price level tends to go down.

For the changes in the supply of goods and services, if there is an increase in the supply of goods and services, the price level tends to fall and, in the converse case, it tends to rise.

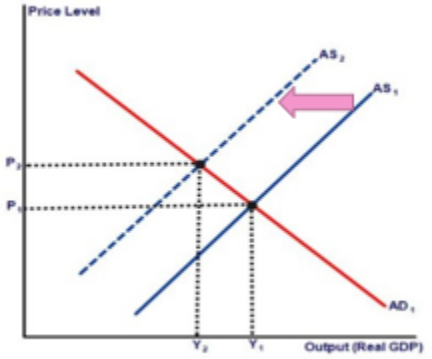
- Inflation Rate-the annual rate of change or the year change in CPI. It shows how fast or slow the CPI increases or decreases.
- Headline Inflation vs. Core Inflation
  -measures change in the cost of living based on movements in the prices of a specified basket of major commodities. It refers to the annual rate of change or the year-on-year change in the Consumer Price Index (CPI).
  -refer to the year-on-year rate of change of the monthly headline CPI after excluding food and energy items
- What Causes Inflation?
  Prices increase when
  - Supply< Demand
  - Demand>Supply

  Prices decrease when
  - Supply> Demand
  - Demand<Supply



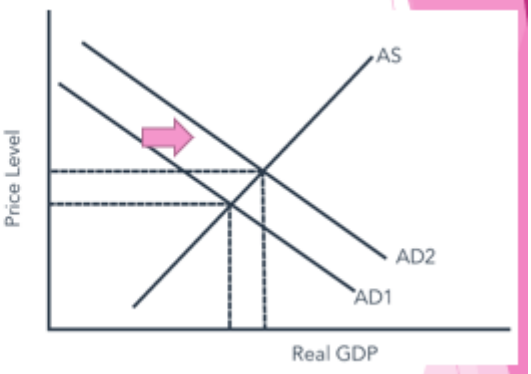
Cost-push inflation

- Due to increase in cost of production and other supply factors (e.g. weather disturbances, increase in the world oil prices
- Outside the influence of BSP



Demand-pull inflation

- Due to excess demand relative to supply of goods and services (e.g. increase in money supply)
- BSP exerts influence over money supply to control inflation



Calculating the rate of inflation or deflation

$$\left[\frac{110 - 100}{100}\right] \times 100\% = 10\%$$

Purchasing power of peso (PPP)

- Shows how much the peso in the base period is worth in another period It gives an indication of the real value of peso in a given period relative to the peso value in the base period.
- PPP= (1/112.5)*100=.89
- The peso in 2018 is worth 0.89 centavos in March 2022, which means that the same basket of goods and services that can be bought at P89 in 2018 is worth P100 in March 2022.
- More simply, your P100 in March 2022 can buy only 89% of the total goods and services in the market basket.

EXERCISES AND ASSESSMENT

1. Discuss the following:

1.1. The existence of money (a) increases the freedom of choice of the consumer and (b) increases the efficiency of allocation of society's resources between the production of consumer goods and investment goods. Explain why by comparing a barter economy with a monetary economy.

1.2. Why do some economists described money during hyperinflation as a "hot potato" that is quickly passed from one person to another?

LESSON 2

THE DEMAND FOR MONEY

Learning Outcomes*: At the end of this chapter, students are expected to:*

1. *Discuss the different money demand theories and the factors considered*
2. *Determine the stability properties of money demand*

Theories of Demand for Money

The demand for money represents the desire of households and businesses to hold assets in a form that can be easily exchanged for goods and services.

Liquidity is the most important characteristic of money that distinguishes it from other types of assets. For this reason, the demand for money is sometimes called the demand for liquidity.

- ❑ Irving Fisher's Transaction-Based Theory
- ❑ Keynes' Liquidity Preference Theory
- ❑ Baumol-Tobin Analysis
- ❑ Friedman's Modern Quantity Theory of Money

1. Quantity Theory of Money (QTM)

$$MV = PY$$

M - is the money supply
V - is the velocity of circulation of money
P - is the overall price level (transactions for the economy during the period)
Y - is the amount of goods and services produced (income level)

Fisher makes two key assumptions:

- ❑ Fisher viewed velocity as constant in the short run.
- ❑ Fisher, like all classical economists, believed that flexible wages and prices guaranteed output, Y, to be at its full-employment level, so it was also constant in the short run.
- ❑ If both V and Y are constant, then changes in M must cause changes in P to preserve the equality between MV and PY. This is the quantity theory of money: a change in the money supply, M, results in an equal percentage change in the price level P.

This theory holds that there is a direct and powerful link between the quantity of money and the level of prices. This theory was developed by Irving Fisher. (Fisher's equation of exchange)

Fisher believed that in the long run an increase in the quantity of money brings about an equal percentage increase in the price level.

2. Cambridge Cash Balance Theory

Cambridge Cash Balance theory of demand for money was put forward by Cambridge economists, Alfred Marshall and Arthur Pigou. This differs from Fisher's transactions approach because it focuses on the function of money as a store of value or wealth instead of Fisher's emphasis on the use of money as a medium of exchange.

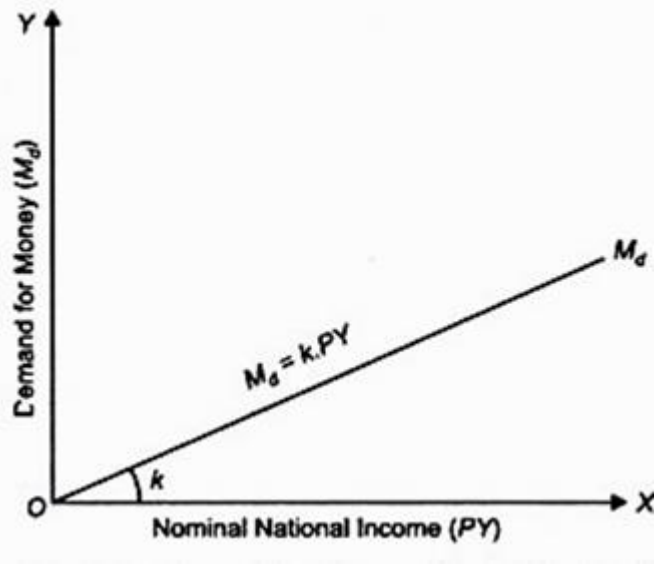
The function of money as a medium of exchange eliminates the need to barter and solves the problem of double coincidence of wants faced in the barter system. However, the function of money as a store of value gives emphasis on holding money as a general purchasing power by individuals over a period of time between the sale of a good or service and subsequent purchase of a good or service at a later date.

Marshall and Pigou focused their analysis on the factors that determine individual demand for holding cash balances. Although they recognized that current interest rate, wealth owned by the individuals, expectations of future prices and future rate of interest determine the demand for money, they however believed that changes in these factors remain constant or they are proportional to changes in individuals' income.

According to them, individual's demand for cash balances (i.e. nominal money balances) is proportional to the nominal income (i.e. money income). Thus, according to their approach, aggregate demand for money can be expressed as:

$$M_d = kPY$$

Y = real national income
P = average price level of currently produced goods and services
PY = nominal income
k = proportion of nominal income (PY) that people want to hold as cash balances



Cambridge Cash balance approach to demand for money is illustrated in the above figure where nominal national income (PY) is on the X-axia and demand for money (M_d) on the Y-axis. It can be seen in the figure above that demand for money (M_d) is a linear function of nominal income. The slope of the function is equal to k, that is, $k = M_d/P_y$.

Cambridge cash balance approach shows relation between demand for money and income whereas Fisher's approach discusses that demand for money is related to total transactions.

3. Keynesian Demand for Money - Liquidity Preference Theory

This theory was formulated by John Maynard Keynes, Keynes believed that there are three motives why people want to hold money.

1. Transactions Motive.

The primary reason why people hold money is because they expect to use it to buy something sometime soon. In other words, people expect to make transactions for goods or services. How much money a person holds onto should probably depend upon the value of the transactions that are anticipated. Thus, a person on vacation might demand more money than on a typical day. Wealthier people might also demand more money because their average daily expenditures are higher than the average person.

We are not interested so much in an individual's demand for money, but rather in what determines the aggregate, economy-wide demand for money. GDP, the value of all goods and services produced during the year, will influence the aggregate value of all transactions since the GDP produced will be purchased by someone during the year. ***As GDP rises, there will be a demand for more money to make the transactions necessary to buy the extra GDP. If GDP falls, then people demand less money for transactions.***

2. Precautionary Motive.

Money is demanded to cover unexpected items of expenditure. Unexpected expenses, such as medical or car repair bills, often require *immediate payment, thus, people want to hold on to cash balances as a safety nets for their unexpected expenditures.*

3. Speculative Motive.

People may hold money not for transaction purposes but for purchasing of other financial assets, especially so when they are expected to fall in price.

Keynes demonstrated that there was an inverse relationship between the price of a bond and the rate of interest. For example, suppose a bond is issued for P200 and its annual return (coupon) is P20. The annual rate of interest is 10%. If the market rate of interest falls to 5% the price of the bond will increase to P400. The rationale behind this is that in order to secure the same return of P20 in any other financial asset, P400 would have to be invested. Conversely, if the rate of interest increases, the price of bonds will fall.

At high rates of interest, individuals expect interest rates to fall and bond prices to rise. To benefit from the rise in bond prices individuals use their speculative balances to buy bonds. Thus, when interest rates are high speculative money balances are low.

At low rates of interest, individuals expect interest rates to rise and bond prices to fall. To avoid the capital losses associated with a fall in the price of bonds individuals will sell their bonds and add to their speculative cash balances. Thus, when interest rates are low speculative money balances will be high. ***There is an inverse relationship between the rate of interest and the speculative demand for money.***

Keyne's Money Demand Function

If the total demand of money is represented by M_d which is held for transactions and precautionary motive denoted as M_1 and held for the speculative motive as M_2. Thus $M_d = M_1 + M_2$.

According to Keynes, the money held under the transactions and precautionary motives, i.e., M_1, is completely interest-inelastic unless the interest rate is very high. The amount of money held as M_1, that is, for transactions and precautionary motives, is mainly a function of the size of income and business transactions together with the contingencies growing out of the conduct of personal and business affairs. Therefore, we can write this as;

$$M_1 = f_1(Y)$$

where Y stands for income, f_1 for demand function, and M_1 for money demanded or held under the transactions and precautionary motives. The above function implies that money held under the transactions and precautionary motives is a function of income.

However, according to Keynes, money demanded for speculative motive, i.e., M_2 as explained above, is primarily a function of the rate of interest. Thus, we can write this as:

$$M_2 = f_2(r)$$

Where r stands for the rate of interest, f_2 for demand function for speculative motive. Since total demand of money $M_d = M_1 + M_2$, we combine the two functions as

$$M_d = f_1(Y) + f_2(r)$$

Thus, according to Keynes' theory of total demand for money is an additive demand function with two separate components. The one component, $f_1(Y)$ represents the transactions demand for money arising out of transactions and precautionary motives is an increasing function of the level of money income. The second component of the demand for money, that is, $f_2(r)$ represents the speculative demand for money, which depends upon rate of interest, is a decreasing function of the rate of interest.

Liquidity Preference Curve and Liquidity Trap

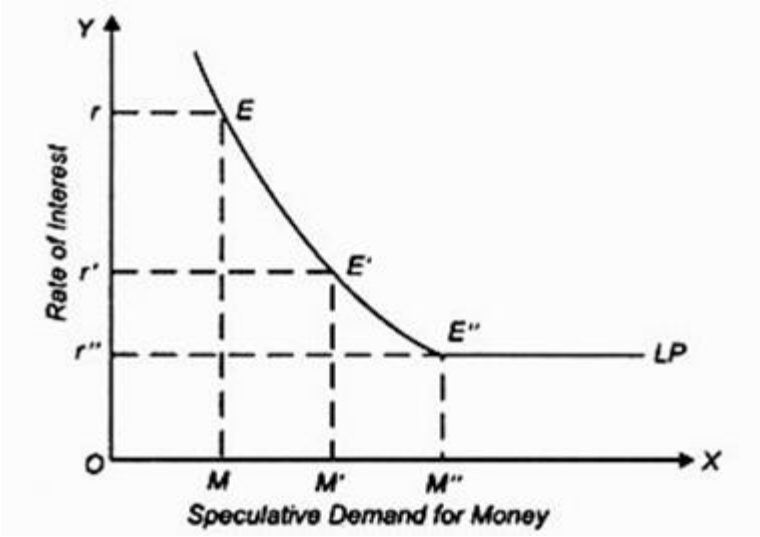


Figure above shows that the liquidity preference curve LP becomes quite flat i.e., perfectly elastic at a very low rate of interest; it is horizontal line beyond point E" towards the right. This perfectly elastic portion of liquidity preference curve indicates the position of absolute liquidity preference of the people. That is, at a very low rate of interest people will hold with them as inactive balances any amount of money they come to have.

This portion of liquidity preference curve with absolute liquidity preference is called liquidity trap by the economists because expansion in money supply gets trapped in the sphere of liquidity trap and therefore cannot affect rate of interest and therefore the level of investment. According to Keynes, it is because of the existence of liquidity trap that monetary policy becomes ineffective to tide over economic depression.

But the demand for money to satisfy the speculative motive does not depend so much upon what the current rate of interest is, as on expectations about changes in the rate of interest. If there is a change in the expectations regarding the future rate of interest, the whole curve of demand for money or liquidity preference for speculative motive will change accordingly.

Thus, if the public on balance expect the rate of interest to be higher (i.e., bond prices to be lower) in the future than had been previously supposed, the speculative demand for money will increase and the whole liquidity preference curve for speculative motive will shift upward.

4. Baumol-Tobin Analysis

1. Tobin's Portfolio Approach to Demand for Money

James Tobin discussed how the transactions demand for money is also related to the interest rate. According to Keynes' theory, demand for money for transaction purposes is insensitive to interest rate while Tobin shows that money held for transaction purposes is interest elastic.

James Tobin said that individuals keep a portfolio of assets which consists of both bonds and money. In his analysis, he assumed that people prefer more wealth to less. According to him, an investor is faced

with a problem of what proportion of his portfolio of financial assets he should keep in the form of money (which earns no interest) and interest-bearing bonds.

The portfolio of individuals may also consist of more risky assets such as shares. According to him, faced with various safe and risky assets, individuals diversify their portfolio by holding a balanced combination of safe and risky assets. He points out that individual's behavior shows risk aversion. That is, they prefer less risk to more risk at a given rate of return. In Keynes' analysis an individual holds his wealth in either all money or all bonds depending upon his estimate of the future rate of interest. But, according to Tobin, individuals are uncertain about future rate of interest.

If a wealth holder chooses to hold a greater proportion of risky assets such as bonds in his portfolio, he will be earning a high average return but will bear a higher degree of risk. Tobin argues that a risk averter will not opt for such a portfolio with all risky bonds or a greater proportion of them. On the other hand, a person who, in his portfolio of wealth, holds only safe and riskless assets such as money (in the form of currency and demand deposits in banks) he will be taking almost zero risk but will also be having no return and as a result there will be no growth of his wealth. Therefore, people generally prefer a mixed diversified portfolio of money, bonds and shares, with each person opting for a little different balance between riskiness and return.

It is important to note that a person will be unwilling to hold all risky assets such as bonds unless he obtains a higher average return on them. In view of the desire of individuals to have both safety and reasonable return, they strike a balance between them and hold a mixed and balanced portfolio consisting of money (which is a safe and riskless asset) and risky assets such as bonds and shares though this balance or mix varies between various individuals depending on their attitude towards risk and hence their trade-off between risk and return.

2. Baumol's Inventory Approach to Transactions Demand for Money

Baumol concentrated on transactions demand for money and explains that the transactions demand for money from the viewpoint of the inventory control or inventory management similar to the inventory management of goods and materials by business firms.

As businessmen keep inventories of goods and materials to facilitate transactions or exchange in the context of changes in demand for them, Baumol asserts that individuals also hold inventory of money because this facilitates transactions (i.e. purchases) of goods and services.
In view of the cost incurred on holding inventories of goods there is need for keeping optimal inventory of goods to reduce cost. Similarly, individuals have to keep optimum inventory of money for transactions purposes. Individuals also incur cost when they hold inventories of money for transaction purposes.

They incur cost on these inventories as they have to forgo interest which they could have earned if they had kept their wealth in saving deposits or fixed deposits or invested in bonds. This interest income forgone is the cost of holding money for transaction purposes. In this way Baumol and Tobin emphasized that transaction demand for money is not independent of the rate of interest.

It may be noted that by money we mean currency and demand deposits which are quite safe and riskless but carry no interest. On the other hand, bonds yield interest or return but are risky and may involve capital loss if wealth holders invest in them. However, saving deposits in banks, according to Baumol, are quite free from risk and also yield some interest.

According to Baumol, individual holds money (i.e. currency and demand deposits) instead of keeping his wealth in saving deposits which are quite safe and earn some interest because of convenience and capability of using it for transactions of goods.

As interest rate on saving deposits goes up people will tend to shift a part of their money holdings to the interest-bearing saving deposits. Individuals compare the costs and benefits of funds in the form of money with the interest- bearing saving deposits. According to Baumol, the cost which people incur when they hold funds in money is the opportunity cost of these funds, that is, interest income forgone by not putting them in saving deposits. The higher the rate of interest, the greater the opportunity cost of holding money (i.e. the greater the interest income forgone for holding money for transactions).

At a lower interest rate on bonds, saving and fixed deposits, the opportunity cost of holding money will be less which will prompt people to hold more money for transactions. At higher interest rates, bonds, savings and fixed deposits are more attractive relative to money holding for transactions. Therefore, at higher interest rates people tend to hold less money for transaction purposes.

5. Friedman's Modern Quantity Theory of Money

Milton Friedman (another Nobel Prize winner) developed a model for money demand based on the general theory of asset demand. Friedman treats money as one type of asset in which wealth holders can keep a part of their wealth. Business firms view money as a capital good or a factor of production which they combine with the services of other productive assets or labor to produce goods and services. Thus, according to Friedman, individuals hold money for the services it provides to them.

Friedman's nominal demand function (M_d) for money can be written as:

$$M_d = f(W, h, r_m, r_b, r_e, P, \Delta P/P, U)$$

As demand for real money balances is nominal demand for money divided by the price level, demand for real money balances can be written as:

$$M_d/P = f(W, h, r_m, r_b, r_e, P, \Delta P/P, U)$$

where M_d stands for nominal demand for money and M_d/P for demand for real money balances, W stands for wealth of the individuals, h for the proportion of human wealth to the total wealth held by the individuals, r_m for rate of return or interest on money, r_b for rate of interest on bonds, r_e for rate of return on equities, P for the price level, $\Delta P/P$ for the change in price level (i.e. rate of inflation), and U for the institutional factors.

1. Wealth (W):

Friedman includes not only non-human wealth such as bonds, shares, money which yield various rates of return but also human wealth or human capital. By human wealth Friedman means the value of an individual's present and future earnings. Individual's demand for money directly depends on his total wealth.

2. Rates of Interest or Return (r_m, r_b, r_e):

Friedman considers three rates of interest, namely, r_m, r_b and r_e which determine the demand for money. r_m is the own rate of interest on money. Money kept in the form of currency and demand deposits does not earn any interest while money held as saving deposits and fixed deposits earns certain rates of interest and it is this rate of interest which is designated by r_m in the money demand function. Given the other rates of interest or return, the higher the own rate of interest, the greater the demand for money.

For r_b and r_e, as rates of return on bond (r_b) and equities (r_e) rise, the opportunity cost of holding money will increase which will reduce the demand for money holdings. Thus, the demand for money is negatively related to the rate of interest (or return) on bonds, equities and other such non-money assets.

3. Price Level (P):

Price level also determines the demand for money balances. A higher price level means people will require a larger nominal money balance in order to do the same amount of transactions, that is, to purchase the same amount of goods and services.

As the price level goes up, the demand for money will rise and, on the other hand, if price level falls, the demand for money will decline. As a matter of fact, people adjust the nominal money balances (M) to achieve their desired level of real money balance (M/P).

4. The Expected Rate of Inflation ($\Delta P/P$)

If people expect a higher rate of inflation, they will reduce their demand for money holdings. This is because inflation reduces the value of their money balances in terms of its power to purchase goods and services.

If the rate of inflation exceeds the nominal rate of interest, there will be negative rate of return on money. Therefore, when people expect a higher rate of inflation, they will tend to convert their money holdings into goods or other assets which are not affected by inflation. On the other hand, if people expect a fall in the price level, their demand for money holdings will increase.

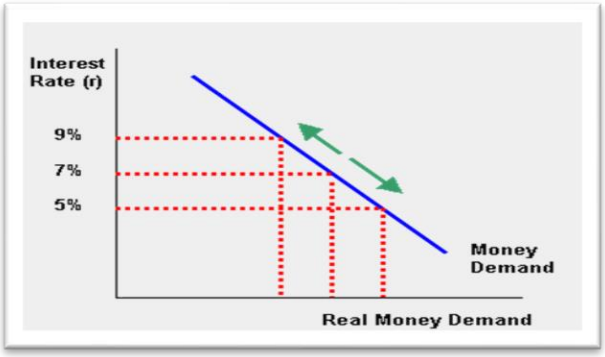
5. Institutional Factors (U)

Institutional factors such as mode of wage payments and bill payments also affect the demand for money. Several other factors which influence the overall economic environment affect the demand for money. For example, if recession or war is anticipated, the demand for money balances will increase.

Besides, instability in capital markets, which erodes the confidence of the people in making profits from investment in bonds and equity shares, will also raise the demand for money. Even political instability in the country influences the demand for money. To account for these institutional factors Friedman includes the variable U in his demand for money

Factors Affecting the Demand for Money

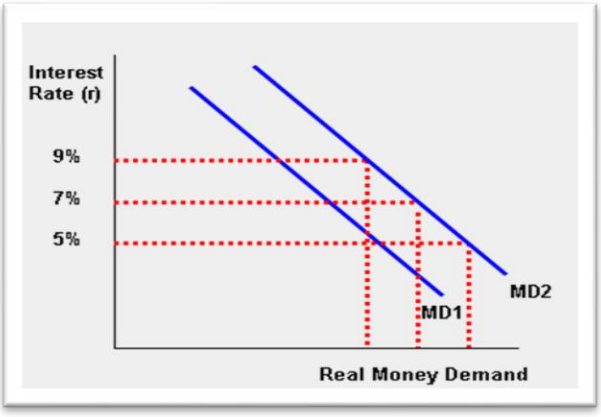
1. **T**he Demand for Money and the Rate of Interest



At high rates of interest, individuals expect interest rates to fall and bond prices to rise. To benefit from the rise in bond prices individuals use their speculative balances to buy bonds. Thus, when interest rates are high speculative money balances are low.

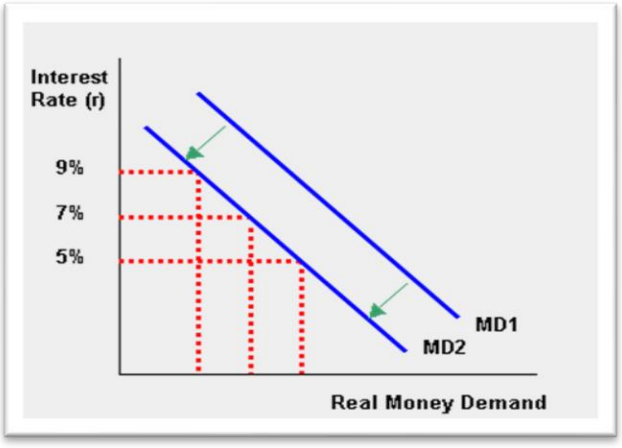
At low rates of interest, individuals expect interest rates to rise and bond prices to fall. To avoid the capital losses associated with a fall in the price of bonds individuals will sell their bonds and add to their speculative cash balances. Thus, when interest rates are low speculative money balances will be high. Money demand is negatively related to the interest rate.

2. **T**he Demand for Money and the Increases in Real GDP



Consider an economy experiencing a sustained economic growth. Rising production and increasing numbers of people employed will increase the demand for money at each rate of interest. Therefore, an increase in real GDP or level of output causes an outward shift in the demand for money from MD1 to MD2. See figure above.

3. Financial Innovation and The Demand for Money



Financial innovation has reduced the demand for money because most people finance their purchases using debit cards and credit cards rather than carrying around large amounts of cash. Demand for money decreased from MD1 to MD2.

EXERCISES AND ASSESSMENT

1. Compare and contrast the Cambridge, Fisherian and Keynesian approaches to the quantity theory of money.

2. Suppose the money supply (M) has been growing at 10% per year, and the nominal GDP (PY) has been growing at 20% per year. The data are as follows (in billion pesos)

	2017	2018	2019
M	100	110	121
PY	1,000	1,200	1,440

2.1. Calculate the velocity in each year. At what rate is velocity growing?

3. If velocity and aggregate output are reasonably constant (according to classical economists), what happens to price level when money supply increases from 1 Billion pesos to 4 billion pesos?

4. If credit cards were made illegal by Congressional Legislation, what would happen to velocity? Explain your answer.

5. “In James Tobin’s analysis of the speculative demand for money, people will hold both money and bonds even if bonds are expected to earn a positive return”. Is this statement true, false, or uncertain? Explain your answer.

LESSON 3

THE MONEY SUPPLY PROCESS AND MONETARY POLICY

Learning Outcomes*: At the end of this chapter, students are expected to:*

1. *Determine the money supply and its aggregates*
2. *Define the monetary base and explain its importance*
3. *Discuss the money multiplier and its determinants*
4. *Define monetary policy*

Money Supply (MS) and the Measures of Money

Money supply is much easier to describe because imagine that the level of money balances available in an economy is simply set by the actions of the Bangko Sentral ng Pilipinas. The BSP defines money on the basis of its components, and there are four measures, namely narrow money (M1), broad money (M2), total domestic liquidity (M3), and M4.

a. **M1 or Narrow Money** – consists of currency in circulation (or currency outside depository corporations; basically, these are coins and paper bills) and peso demand deposits. Currency is a liability of the BSP while peso demand deposits or checkable deposits are liabilities of and created by commercial banks and deposit money banks. *M1 = Currency (C)+ demand deposits (dd)*

b. **M2 or Broad Money** – consists of M1 plus peso savings and time deposits, *M2 = M1 + sd + td*

c. **M3 or Broad Money Liabilities** – consists of M2 plus peso deposit substitutes, such as promissory notes and commercial papers (i.e., securities other than shares included in broad money). *M3 = M2 + ds or M3=C+D*

Where: D (deposit liabilities of commercial banks) = demand deposits, savings deposits, time deposits and deposit substitutes, D = dd + sd + td

d. M4 - consists of M3 plus transferable and other deposits in foreign currency

Money Creation Process

The money creation process involves the interaction of the banking system i.e the BSP and all banks and the general public. It starts with the printing and issuance of currency by the BSP. This enters into the financial system as cash holdings of banks or the general public. Part of the holdings of the general public is deposited with banks. Banks, after setting aside a portion for reserve requirements, lend out or invest the remaining deposits of the public, along with part of their own cash holdings. These funds eventually find their way back to the banking system as deposits and the process continues. Through this mechanism, the contraction/expansion in money supply or M3 becomes a multiple of the contraction/expansion in the monetary base.

Suppose the Central Bank prints P100, 000 and decided to deposit it in Bank X. Bank X sets aside a portion of that P100, 000 that is required reserves (a specific amount that banks must hold as reserves on all deposits), say 10%. The remaining 90%, P90,000 becomes excess reserves. Bank X can lend that P90,000 to Customer A, who deposits into his account in Bank Y. At this step, the original P100,000

remains in the system, and we can now add Customer A's P90,000. Bank Y sets aside 10%, and lends out the rest. If one were to follow this **multiple deposit expansion** process to its completion, the end result would be that the bank's deposits would increase by P1 million, its loans would increase by P900,000, and its reserves would increase by P100,000, all due to the initial deposit of P100,000. This can be summarized in the table shown below

TABLE Multiple Expansion of Deposits

Round	New deposits	New reserves	New loans
1	P100,000	P10,000	P90,000
2	90,000	9,000	81,000
3	81,000	8,100	72,900
4	72,900	7,290	65,610
5	65,610	6,561	59,049
.	.	.	.
.	.	.	.
.	+ .	+ .	+ .
	P1,000,000	P100,000	P900,000

The Money Multiplier

Since the Central Bank can control the monetary base much more precisely than it can control reserves, it makes sense to model the money supply process by linking the money supply to the monetary base.

C = currency in circulation
D = checkable deposits (demand deposits)
M = C + D = money supply (M1)
MB = monetary base = high-powered money.

The money multiplier links the money supply M to the monetary base MB via
$M = m \times MB$
C = currency in circulation
D = deposits
ER = excess reserves,
and define
c = C/D = currency ratio= measures how much currency the non-bank public holds
e = ER/D = excess reserve ratio = measures how much excess reserves banks hold
R = total reserves
RR = required reserves
ER = excess reserves,
R = RR + ER.

Let
r = required reserve ratio
so that required reserves can be calculated as
$RR = r \times D$
$R = r \times D + ER$.
$MB = R + C = r \times D + ER + C$

What are the implications of equation?

Example 1: Let ER = 0 and C = 0.

$$MB = r \times D + ER + C$$
$$MB = r \times D$$
$$D = 1/r \times MB.$$

Since $r < 1$, $1/r > 1$. Hence, this example reveals that a $1 increase in MB that flows into deposits gets multiplied: it leads to a increase in deposits of more than $1, due to the process of multiple deposit creation. Note that in developing our simple model of deposit creation, we were assuming that ER = 0 and C = 0, so that banks never hold excess reserves and depositors never hold currency.

Example 2: Let D = 0 and C = 0

$$MB = r \times D + ER + C$$
$$ER = MB.$$

Thus, a $1 increase in MB that is held as excess reserves does not get multiplied: excess reserves do not participate in the process of multiple deposit creation, since they are held by banks instead of being lent out.

Example 3: Let D = 0 and ER = 0

$$MB = r \times D + ER + C$$
$$C = MB.$$

Thus, a $1 increase in MB that is held as currency does not get multiplied: currency does not participate in the process of multiple deposit creation, since it is not deposited.

To complete our derivation of the money multiplier, let's rewrite equation in terms of the currency and excess reserve ratios:

$$c = C/D \text{ or } C = c \times D$$
$$e = ER/D \text{ or } ER = e \times D$$
$$MB = r \times D + ER + C$$
$$MB = r \times D + e \times D + c \times D$$
$$MB = (r + e + c) \times D$$
$$D = 1/(r + e + c) \times MB$$

Now use our definition of the money supply M:

$$M = C + D$$

Since m measures the change in M given a change in MB

$$M = (1 + c)/(r + e + c) \times MB$$

where now we have a specific expression for the money multiplier m:

$$\mathbf{m = (1 + c)/(r + e + c)}$$

Let's consider a specific example, to see exactly how this formula works:
r = 10%= 0.10
C = $400 billion
D = $800 billion
ER = $0.8 billion = $800 million
M = C + D = $1200 billion

Thus, in this example,
c = C/D =$400 billion/$800 billion= 0.5,
so that depositors hold 50% of their funds as currency, and
e = E/D =$0.8 billion/$800 billion= 0.001,
so that banks hold 0.1% of their deposits as excess reserves.
Our formula for the money multiplier implies:
m = (1 + c)/(r + e + c)
=1 + 0.5/0.1 + 0.001 + 0.5=1.5/0.601= 2.5 > 1.
Hence, in this example, a $1 increase in MB leads to a $2.50 increase in M.

Factors that Determine the Money Multiplier

- ❑ The required reserve ratio r.
- ❑ The currency ratio c.
- ❑ The excess reserve ratio e.

Changes in the Required Reserve Ratio

Suppose now that r, the require reserve ratio, increases from 10% to 15%.
Let's recompute m:
m =(1 + c)/(r + e + c)
=1 + 0.5/0.15 + 0.001 + 0.5
=1.5/0.651= 2.3.

Evidently, r and m are negatively related: m falls when r rises, and m rises when r falls.
This result follows from the fact that less multiple deposit creation can occur when r rises, while more multiple deposit creation can occur when r falls.

Note that r appears in the denominator of the fraction
m =(1 + c)/(r + e + c) which is another way of seeing that r and m are negatively related.

Changes in the Currency Ratio

Now let r = 0.10 as before, but suppose that c, the currency ratio, increases from 50% to 75%:
m =(1 + c)/(r + e + c)
=1 + 0.75/0.1 + 0.001 + 0.75
=1.75/0.851= 2.06.

Evidently, c and m are also negatively related: m falls when c rises, and m rises when c falls.
This result follows from the fact that currency does not participate in the process of multiple deposit creation. Hence, when depositors want to hold more currency, less multiple deposit creation can occur, and when depositors want to hold less currency, more multiple deposit creation can occur.

Changes in the Excess Reserve Ratio

Finally, let c = 0.5 as before, but suppose that e, the excess reserve ratio, increases from 0.1% to 0.5%:
m = (1 + c)/(r + e + c)
=1 + 0.5/0.1 + 0.005 + 0.5
=1.5/0.605= 2.48.

Evidently, e and m are also negatively related: m falls when e rises, and m rises when e falls.

This result follows from the fact that excess reserves do not participate in the process of multiple deposit creation. Hence, when banks want to hold more excess reserves, less multiple deposit creation can occur, and when banks want to hold less excess reserves, more multiple deposit creation can occur.

Monetary Policy

- ❑ measures or actions taken by the central bank to influence the general price level and the level of liquidity in the economy.
- ❑ Monetary policy actions of the BSP are aimed at influencing the timing, cost and availability of money and credit, as well as other financial factors, for the main objective of stabilizing the price level.

Expansionary (Easy) Monetary Policy

Monetary policy setting that intends to increase the level of liquidity/money supply in the economy and which could also result in a relatively higher inflation path for the economy. Examples are the lowering of policy interest rates and the reduction in reserve requirements. Expansionary monetary policy tends to encourage economic activity as more funds are made available for lending by banks. This, in turn, increases aggregate demand which could eventually fuel inflation pressures in the domestic economy.

Contractionary (Tight) Monetary Policy

Monetary policy setting that intends to decrease the level of liquidity/money supply in the economy and which could also result in a relatively lower inflation path for the economy. Examples of this are increases in policy interest rates and reserve requirements. Contractionary monetary policy tends to limit economic activity as less funds are made available for lending by banks. This, in turn, lowers aggregate demand which could eventually temper inflation pressures in the domestic economy.

EXERCISES AND ASSESSMENT

1. “The money multiplier is necessarily greater than 1”. Is this statement true, false or uncertain? Explain your answer.

2. What happens to money supply if currency ratio increases? Explain your answer.

3. The Central Bank purchase P10 million of bonds from the public and also lowers reserve requirement (r). What will happen to money supply?

LESSON 4

UNDERSTANDING THE BEHAVIOR OF INTEREST RATES

Learning Outcomes*: At the end of this chapter, students are expected to:*

1. *Identify the determinants of the supply and demand for bonds.*
2. *Discuss the factors that shift the demand and supply of money.*
3. *Demonstrate an understanding on how interest rates are determined in the bond and money market.*

Supply and Demand for Bond (Bond Market)

The interest-rate determination can be analyzed with the use of demand and supply of bond in the market.

Let us derive a bond demand curve, which shows the relationship between the quantity demanded and the price when all other variables are held constant. Consider a one-year discount bonds, which make no coupon payments but pay the owner $1,000 face value in a year. The expected return on the bonds is equal to interest rate as measured by the yield to maturity.

$$i = R^e = \frac{F - P}{P}$$

Where i= interest rate or yield to maturity, R^e=expected return, F= Face value of the discount bond, P= purchase price of the discount bond.

Given the formula, if the bond sells at $950, the interest rate and expected return is

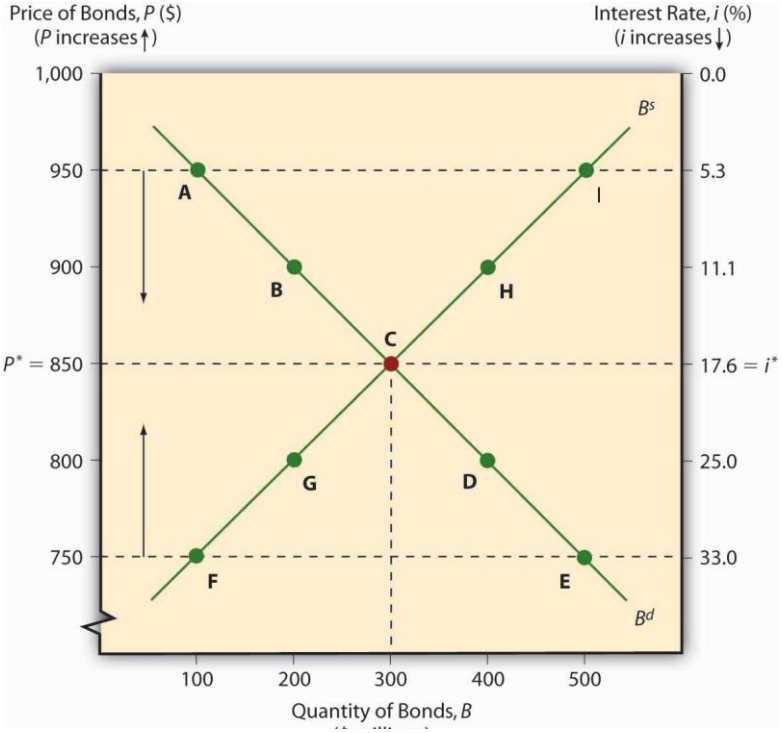
$$\frac{\$1{,}000 - \$950}{\$950} = 0.053 = 5.3\%$$

At this 5.3% interest rate and expected return corresponding to a bond price of $950, let us assume the quantity of bond is $100 Billion which is depicted at point A on the diagram below.

At price of $900, the interest rate and expected return is

$$\frac{\$1{,}000 - \$900}{\$900} = 0.111 = 11.1\%$$

Point B in the diagram shows that the quantity of bonds demanded at a price $900 has increased to $200Billion. Using the same process, if the bond price is $850, interest rate and expected return is 17.6% with quantity demanded of bonds of $300 Billion (Point C). Furthermore, at the lower price of $800, interest rate and expected return is 25% with quantity demanded of bonds of $400 Billion (Point D). For a price of $750, it has an interest rate and expected return is 33.3% with quantity demanded of bonds of $500 Billion (Point E).



The curve B^d is the demand curve for bonds, which is downward slope, indicating that at a lower price of a bond, holding other factors constant, the quantity demanded is higher.

We use the same assumption in deriving the supply curve, which shows the relationship between the quantity supplied and the price, holding other factors constant. When the price of the bonds is $750 (interest rate=33.3%), point F shows that the quantity of bonds supplied is $100 Billion. If the price is $800, the interest rate is lower at 25%. Because at this interest rate, it is now less costly to borrow by issuing bonds, firms will be willing to borrow more through the issuance of bonds. Higher prices of bonds like $900 and $950 result in an even higher quantities of bonds supplied (points H and I). The B^s curve has the usual upward slope, indicating that as the price increases, holding other factors constant, the quantity supplied increases.

In the diagram above, the equilibrium is reached at point C, where the quantity of bonds demanded equals the quantity of bonds supplied. At equilibrium, bond price is $850 (interest rate of 17.6%) and a quantity of bonds of $300 Billion.

When the bond price is set too high, let us say $900, there will be an excess supply of bonds. Because people want to sell more bonds than others want to buy, the price of bonds will fall.

When the bond price is set too low, let us say $750, there will be an excess demand for bonds. Because people want to buy more bonds than others want to sell, the price of bonds will rise.

Determinants of the Demand for Bonds

1. Wealth—the total resources owned by the individual, including all assets. In a business expansion with growing wealth, the demand for bonds rises and the demand curve for bonds shifts to the right while in a recession, when income and wealth are falling, the demand for bonds falls, and the demand curve shifts to the left.

2. Expected Return—the return expected over the next period on one asset relative to alternative assets. Higher expected interest rates in the future lower the expected return for long-term bonds, decrease the demand for bonds, and shift the demand curve to the left while lower expected interest rates in the future increase the demand for long-term bonds and shift the demand curve to the right.

3. Risk—the degree of uncertainty associated with the return on one asset relative to alternative assets. An increase in the riskiness of bond causes the demand for bonds to fall and the demand curve to shift to the left. Conversely, an increase in the riskiness of alternative assets causes the demand for bonds to rise and the demand curve to shift to the right.

4. Liquidity—the ease and speed with which an asset can be turned into cash relative to alternative assets. Increased liquidity of bonds results in an increased demand for bonds, and the demand curve to shift to the right while increased liquidity of alternative assets lowers the demand for bonds and shifts the demand curve to the left.

Determinants of the Supply of Bonds

1. Expected Profitability of Investment Opportunities- Relates to the expectations that firms have about investment opportunities. When opportunities for profitable plant and equipment investments are plentiful, which usually happens when the business cycle is expanding, firms are more willing to borrow in order to finance their projects. Therefore, the supply of bonds increases, and the supply curve shifts to the right. On the other hand, when the economic outlook is bad and firms can't find good opportunities, the supply of bonds falls and the supply curve shifts to the left.

2. Expected Inflation-. When inflation increases, the real cost of borrowing falls, making borrowing cheaper. Therefore, an increase in expected inflation causes the supply of bonds to increase and therefore the supply curve for bonds to shift to the right.

3. **Government budget deficit**- The activities of the government have a major impact on the supply of bonds, mainly because when the government decides to spend more than it earns, therefore expanding its budget deficit, it has to increase the supply of bonds in order to finance this excessive spending, making, therefore, the supply curve to shift to the right. On the other hand, a government surplus, which consists of earnings higher than total expenses, leads to a decrease in the supply of bonds, and therefore the supply curve shifts to the left.

The Market for Loanable Funds

When a firm decides to expand its capital stock, it can finance its purchase of capital in several ways. It might already have the funds on hand. It can also raise funds by selling shares of stock. When a firm sells stock, it is selling shares of ownership of the firm. It can borrow the funds for the capital from a bank. Another option is to issue and sell its own bonds. A bond is a promise to pay back a certain amount

at a certain time. When a firm borrows from a bank or sells bonds, it accepts a liability—it must make interest payments to the bank or the owners of its bonds as they come due.

Regardless of the chosen method of financing, a critical factor in the firm's decision on whether to acquire and hold capital and on how to finance the capital is the interest rate. The role of the interest rate is obvious when the firm issues its own bonds or borrows from a bank. But even when the firm uses its own funds to purchase the capital, it is forgoing the option of lending those funds directly to other firms by buying their bonds or indirectly by putting the funds in bank accounts, thereby allowing the banks to lend the funds. The interest rate gives the opportunity cost of using funds to acquire capital rather than putting the funds to the best alternative use available to the firm.

The interest rate is determined in a market, that is, the market in which borrowers (demanders of funds) and lenders (suppliers of funds) meet is the loanable funds market.

We will simplify the model of the role that the interest rate plays in the demand for capital by ignoring differences in actual interest rates that specific consumers and firms face in the economy. For example, the interest rate on credit cards is different from the mortgage rate of interest, and large, established companies can borrow funds or issue bonds at lower interest rates than new, start-up companies can. Interest rates that firms face depend on a variety of factors, such as riskiness of the loan, the duration of the loan, and the costs of administering the loan. However, since the focus is on general tendencies that cause interest rates to rise or fall and since the various interest rates in the economy tend to move up and down together, the conclusions we reach about the market for loanable funds and how firms and consumers respond to interest rate changes will still be valid.

The Demand for Loanable Funds

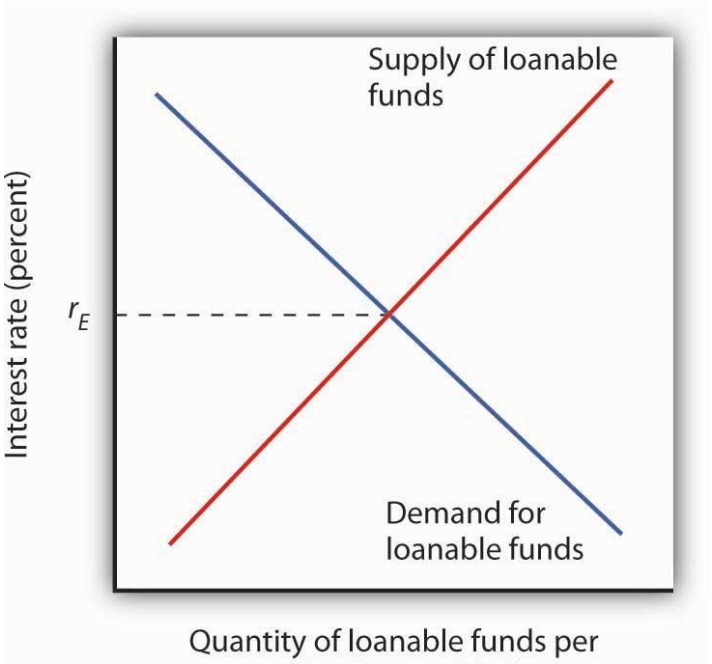
A firm's decision to acquire and keep capital depends on the net present value of the capital in question, which in turn depends on the interest rate. The lower the interest rate, the greater the amount of capital that firms will want to acquire and hold, since lower interest rates translate into more capital with positive net present values. The desire for more capital means, in turn, a desire for more loanable funds. Similarly, at higher interest rates, less capital will be demanded, because more of the capital in question will have negative net present values. Higher interest rates therefore mean less funding demanded.

The Supply of Loanable Funds

Lenders are consumers or firms that decide that they are willing to forgo some current use of their funds in order to have more available in the future. Lenders supply funds to the loanable funds market. In general, higher interest rates make the lending option more attractive.

For consumers, however, the decision is a bit more complicated than it is for firms. In examining consumption choices across time, economists think of consumers as having an expected stream of income over their lifetimes. It is that expected income that defines their consumption possibilities. The problem for consumers is to determine when to consume this income. They can spend less of their projected income now and thus have more available in the future. Alternatively, they can boost their current spending by borrowing against their future income.

The equilibrium interest rate is determined by the intersection of the demand and supply curves in the market for loanable funds.



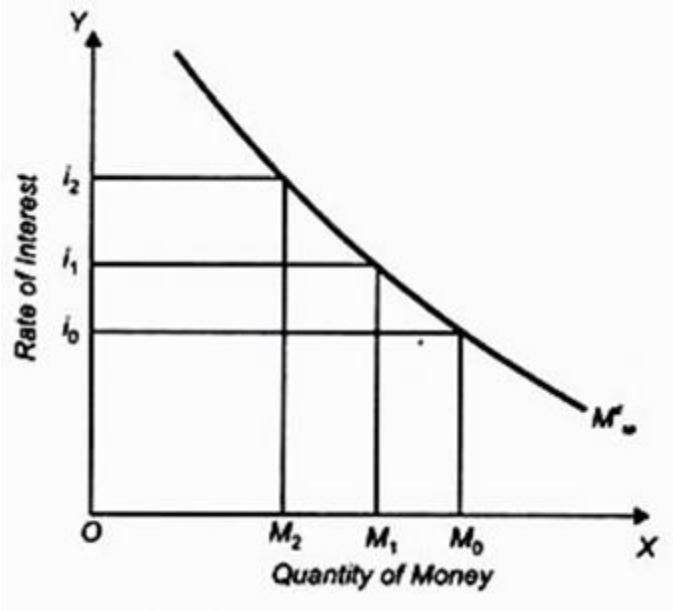
At lower interest rates, firms demand more capital and therefore more loanable funds. The demand for loanable funds is downward-sloping. The supply of loanable funds is generally upward-sloping. The equilibrium interest rate, rE, is found where the two curves intersect.

Supply and Demand for Money (Money Market)

Instead of determining the equilibrium interest rates using the supply and demand for bonds, an alternative model developed by John Maynard Keynes is the Liquidity Preference Framework, which determines the equilibrium in terms of the supply of and demand for money.

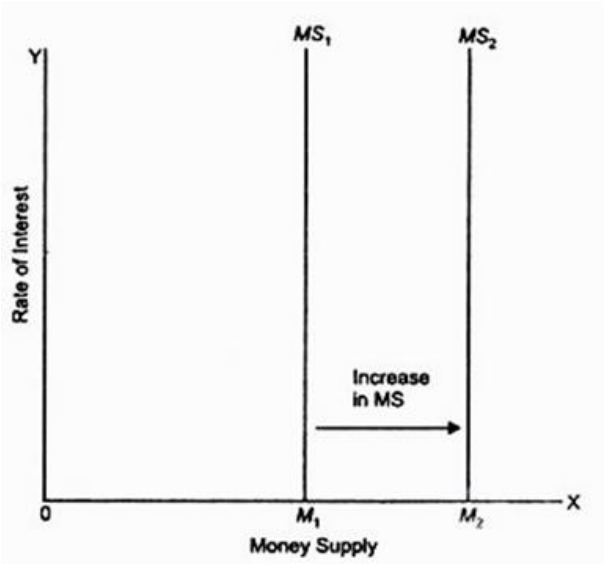
It is evident from the analysis in Chapter 2 that demand for money as an asset, that is, for speculative purposes depends on rate of interest on bonds, which is the opportunity cost of holding money. If rate of interest is higher, people would demand less money to hold for speculative purposes. This is because at a higher rate of interest they would go in for holding more bonds or other financial assets in their investment portfolio. On the other bond, at a lower rate of interest on bonds, they would demand more money to hold.

Thus, demand for money to hold for speculative purposes, that is, as an asset is negatively related to rate of interest. Therefore, demand curve for money for speculative purposes slopes downward. This indicates that at a higher rate of interest, less money is held as an asset and at a lower interest rate, more money is held as an asset. Demand for money to hold for speculative purposes is drawn as M^d in Figure below.



The Central Bank of a country (in case of the Philippines, Bangko Sentral ng Pilipinas) is given the right to control the supply of money in the economy. The money supply is fixed by the policy actions of the Central Bank of the country. Through open market operations changes in reserve requirement of banks, Central Bank of a country can influence the creation of bank credit which constitutes an important part of the money supply of the country.

Figure below shows a vertical supply curve of money with interest rate on the Y-axis. If the Central Bank of the country decides to increase money supply and fixes it at MS_2, money supply curve shifts to the right as shown in the Figure. On the other hand, if the Central Bank decides to reduce the money supply in the economy, money supply curve will shift to the left.



Equilibrium in the money market exists when the quantity demand for money equals the quantity supply of money at a given interest rate.

Money Market Equilibrium

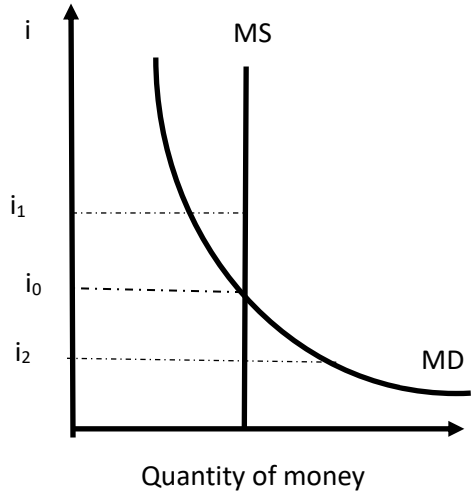
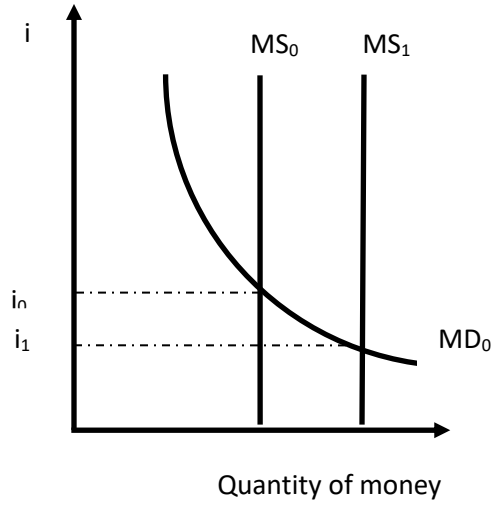


Figure on the left shows that the equilibrium interest rate is determined by the intersection of the money demand and money supply at interest rate i_0. Money supply, MS, is drawn as a vertical line because changes in the interest rate will not affect the money supply in the economy. Money demand (MD) is downward sloping because of the inverse relationship between money demand and the interest rate.

When interest rate is at i_1, the quantity of money supplied is greater than the quantity of money demanded, thus, there is an excess supply of money. The excess supply of money means that people are holding more money than they desire, so they will get rid of their excess supply of money by purchasing bonds. This will bid the price of bond to increase. As the bond price rises, the interest rate will fall towards the equilibrium.

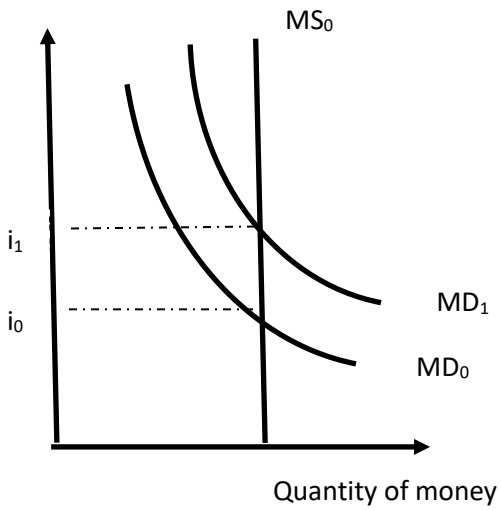
When interest rate is at i_2, the quantity of money supplied is less than the quantity of money demanded, thus, there is an excess demand for money. The excess

Effects of Expansionary Monetary Policy on Interest Rates



Expansionary monetary policy refers to any policy initiative by a country's central bank to raise, or expand, its money supply. This can be accomplished with open market purchases of government bonds, with a decrease in the reserve requirement or with a decrease in the discount rate. In the left side figure, suppose that money supply increased from MS_0 to MS_1, which is shown by a rightward shift from MS_0 to MS_1, interest rate falls from i_0 to i_1. On the other hand, a decrease in money supply a leftward shift from MS_1 to MS_0 will result to an increase in the interest rate.

Effect of a Real GDP Increase (i.e., Economic Growth) on Interest Rates



An increase in GDP will raise the demand for money because people will need more money to make transactions. In other words, money demand rises due to the transactions demand effect. This increase is reflected in the diagram below as a rightward shift of the money demand function from MD_0 to MD_1. Thus, an increase in real GDP (i.e., economic growth) will cause an increase in the average interest rates in an economy. In contrast, a decrease in real GDP (a recession) will cause a decrease in the average interest rates in an economy.

EXERCISES AND ASSESSMENT

1. Discuss and illustrate graphically the effect of a tight monetary policy to interest rate.
2. Explain the following:
   - 2.1. If government revenues drop significantly (and remember all else stays the same, including government expenditures), what will likely happen to bond prices? Why?
   - 2.2. What will happen to bond prices if the government implements regulatory reforms that reduce regulatory costs for businesses? Why?
   - 2.3. If government revenues increase significantly, what will likely happen to bond prices? Why?
   - 2.4. What will happen to bond prices if terrorism ended and the world's nations unilaterally disarmed and adopted free trade policies? Why?
   - 2.5. What will happen to bond prices if world peace brought substantially lower government budget deficits?
3. Using both the supply and demand for bonds and liquidity preference framework, show what the effect is on interest rates when the riskiness of bonds rises. Are the results the same in the two frameworks?
4. An important way in which the Central Bank decreases the money supply is by selling bonds to the public. Using a supply and demand curve analysis for bonds, show what effect this action has on interest rates. Is your answer consistent with what you expect to find in the liquidity preference framework?

5. **Modified TRUE or FALSE:** Write TRUE if the statement is correct and if the statement is false, underline the word or group of words that makes the statement false and write the correct word or group of words in the space provided to make the statement correct.

_____ 1. An increase in the price of bonds would result to a decline in the quantity demanded for bonds.

_____ 2. The money multiplier and the money supply are positively related to the required reserve ratio.

_____3. The liquidity preference framework concludes that when income is rising during a business cycle expansion (holding other economic variables constant) interest rates will rise.

_____4. Higher government deficit increases the supply of bonds and shifts the supply curve to the right.

_____ 5. The quantity demanded of an asset is negatively related to its liquidity relative to other assets.

_____6. The money multiplier and the money supply are directly related to currency-deposit ratio.

_____7. The money multiplier and the money supply are negatively related to the excess reserves ratio.

_____8. An increase in an asset's expected return relative to that of an alternative asset, holding everything else unchanged, raises the quantity demanded of the asset.

_____9. In a business cycle expansion, the supply of bonds increases, and the supply curve shifts to the left.

_____10. Increased liquidity of bonds results in an increased demand for bonds, and the demand curve shifts to the right.

LESSON 5

BANGKO SENTRAL NG PILIPINAS (BSP) AND THE PHILIPPINE FINANCIAL SYSTEM

Learning Outcomes*: At the end of this chapter, students are expected to:*

1. *Discuss the importance of BSP in the economy*
2. *Explain the functions and structure of the financial market.*
3. *Identify the types of and economies offered by the financial intermediaries*

Bangko Sentral ng Pilipinas

The Bangko Sentral ng Pilipinas (BSP) was established on July 3, 1993 pursuant to the provisions of the 1987 Philippine Constitution and the New Central Bank Act of 1993. The BSP enjoys fiscal and administrative autonomy from the National Government in the pursuit of its mandated responsibilities.

The primary objective of the Bangko Sentral ng Pilipinas is to maintain price stability conducive to a balanced and sustainable economic growth. Price stability refers to a condition of low and stable inflation. By keeping inflation low, the BSP helps in ensuring a strong and sustainable economic growth. Prices of goods and services do not rise too quickly, thus people have a degree of certainty when deciding how to spend, save or invest their money.

The BSP also aims to promote and preserve monetary stability and the international convertibility of the national currency.

BSP's Difference from the old CBP

1. The BSP was given the explicit responsibility to maintain price stability.
2. The BSP was granted fiscal and administrative autonomy from the National Government.
3. The BSP no longer undertakes quasi-fiscal activities.
4. The BSP is not permitted to engage in development banking or financing.

Three (3) Pillars of Bangko Sentral ng Pilipinas.

1. Price stability through the conduct of monetary policy.
2. Financial stability through banking supervision and regulation.
3. Efficient payments and settlements system through operation of real-time gross settlement system.

Other Functions of the BSP

Bangko Sentral ng Pilipinas performs the following functions;

1. **Currency issue**. The national currency, such as notes and coins, which are fully guaranteed by the Government and are considered legal tender for all private and public debts, is solely produced and issued by the BSP.

2. Liquidity Management. In order to achieve the primary objective of the BSP i.e. to maintain price stability, the BSP must formulate and implement monetary policy aimed at influencing money supply.

3. **Financial Supervision**. There is a regular monitoring and examination in the operations of the member banks being done by the BSP.

4. **Lender of last resort**. In case the member banks suffer from financial problems which directly threaten monetary and financial stability, the BSP provides loans or advances to these banks.

5. **Banks of banks**. BSP only accept deposits from and grant loans to banks and not to the public.

6. **Management of foreign currency reserves**. The BSP seeks to maintain sufficient international reserves to meet any foreseeable net demands for foreign currencies in order to preserve the international stability and convertibility of the Philippine peso.

7. **Determination of exchange rate policy**. The BSP determines the exchange rate policy of the Philippines. Currently, the BSP adheres to a market-oriented foreign exchange rate policy.

8. **Other activities**. The BSP functions as the banker, financial advisor and official agent of the Government, its political subdivisions and instrumentalities and government-owned and -controlled corporations. As government banker, the BSP may conduct the banking account of the government. As government agent, the BSP performs the function of providing the foreign exchange required to meet governmental purchases of imports and serving foreign debts. Lastly, as financial adviser it provides assistance by informing the government on monetary and price movements.

Functions of the Financial System

The financial system plays the key role in the economy by stimulating economic growth, influencing economic performance of the actors affecting economic welfare. This is achieved by financial infrastructure, in which entities with funds allocate those funds to those who have potentially more productive ways to invest those funds. A financial system makes possible a more efficient transfer of funds. The basic function of the financial system is to provide channels to transfer funds from savers with an excess of funds to spenders facing a shortage of funds. The most important suppliers or savers of funds are households, while firms, the government and foreigners sometimes find themselves with excess funds and so lend them out. Funds may flow from lenders to borrowers via direct and indirect finance.

Financial Intermediation Process

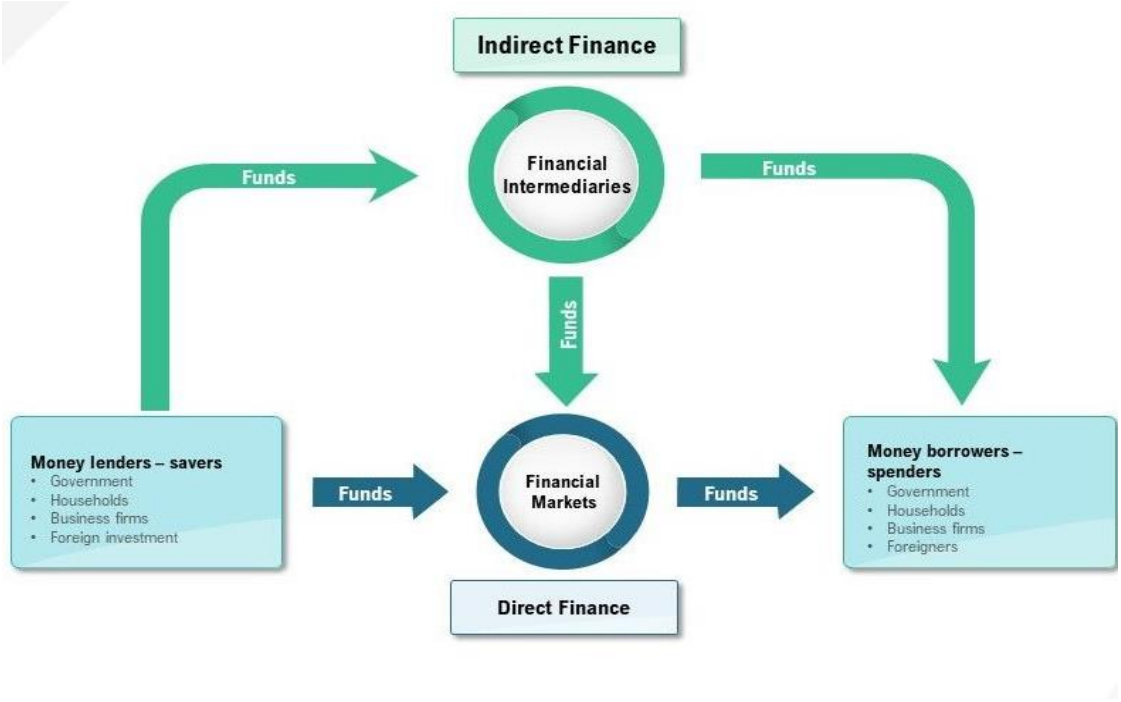
In direct or market-based finance (the route below the figure), debtors borrow funds directly from lenders in the financial markets by selling them financial instruments, which are claims on the borrowers' future income or assets. In the indirect or bank-based finance, financial intermediaries play an additional role in channeling funds.

Direct Lending-involves the transfer of funds from the ultimate lender to the ultimate borrower, most often through a third party. An example is a person purchasing the securities issued by a firm. The securities

are usually sold to the public through an underwriter, someone who purchases them from the issuer with the intention of reselling them at a profit. The underwriter negotiates the terms of the contract, typically a commercial bank, to monitor compliance.

Indirect lending- involves lending by the ultimate lender to a financial intermediary who pools the funds of many lenders in order to re-lend with a mark-up over the cost of the funds. The ultimate borrowers are usually unknown to the ultimate lenders. A lender faces lower risk because as a specialist in the field, he knows that the financial intermediary has a well-established expectation in the business of lending.

Key



Services Provided by the Financial System

The financial system provides three key services for borrowers and savers, namely: risk sharing, liquidity and information. Many financial decisions made by savers and borrowers are influenced by the availability of these services.

1. Risk Sharing-Among the advantages of using financial system to match individual savers and borrowers is that it allows the sharing of risks. Risk is defined as the chance that the value of financial assets will change relative to what you expect. If one for example, buys a stock of ABS-CBN for P55.00 per share, that stock might be worth P20.00 or P75.00 per share in one year, depending on the fluctuations in interest rates and ABS-CBN prospects.

   Many individual savers are not risk-takers and seek a steady return on their assets rather than wide swings between high and low earnings. Individuals prefer stable returns on the collection of assets they hold. A collection of assets is called portfolio, which may consist of investment holdings such as T-bonds and shares of stocks. The performances of these assets vary in terms of their ability to generate income. The spreading of wealth into many assets to make up a portfolio is known as diversification. The principle of efficient diversification holds that bundle of assets should be combined to mitigate market risk. The financial system provides risk sharing by allowing savers to hold diversified assets.

2. Liquidity- Liquidity in the financial system is manifested by the ease with which an asset can be exchanged for money to purchase other assets, good and services. Savers view liquidity as a benefit since they can exchange their assets easily when they need them for their own consumption or investment. In general, the more liquid an asset, the easier it is to exchange the asset for another asset or for goods and services. For example, a person can easily exchange the peso bill for bread because peso bill is highly liquid. Moreover, a check can also be encashed within a short period of time to buy T-shirts and shoes. However, selling a house takes more time because real property is not very liquid. By holding stocks and bonds on a company, investors have more liquid savings than they would if they owned the machine or equipments in the company since they can easily sell the bond and stocks than machines and equipments to buy other goods and services. Financial markets and intermediaries provide systems for making financial assets more liquid.

3. Information- The financial system provides market player more access to vital information about borrowers' and lenders' expectations, and what they have to offer. Providing better access to information embraces the systems' role of collecting and communicating information. Gathering or collecting information includes finding out about prospective borrowers and what they will do with borrowed funds. Obtaining such information would be costly and time-consuming for savers, who want all the facts before lending their money.

Barriers in Matching Savers and Borrowers

Asymmetric Information and Information Cost-When investors buy shares of stocks or company's bonds, the investors and the company's managers are assumed to have the same information or symmetric information. This does not mean that both the investors and company's managers perfectly have the same information. Investors may have some information that the company's manager are not even aware of. In general, neither the investors nor the company's managers can anticipate market conditions or economic events that are relatively influence by the market forces. Asymmetric information occurs when one party in the transaction has better information than the other, or when the borrower and the lender have different information about the transaction. For example, managers may know that the future of their firm is in danger, but lenders continue lending to the firm because they do not have this information. The presence of asymmetric information makes it costly for savers and borrowers to make exchanges in financial markets.

Two Types of Cost Arising from Asymmetric Information

Adverse Selection –occurs when those firms most likely to default are themselves most actively seeking for loans. This happens because the interest rate offered for such loans is the most attractive to the high risk firms. Adverse selection is the lender's problem of telling the good-risk applicants from the bad-risk ones before making an investment.

The problem of adverse selection also applies to insurance markets. The customers that are most likely to want insurance are the people who face the highest risks, but these are the people that insurance companies would least like to have as customers. For example:

- The people who most want to buy collision insurance for their cars are those who drive a lot and are most likely to have accidents.
- The people who are most eager to buy health insurance are those who have reason to think that they are going to have an expensive illness.
- The people who are most likely to buy life insurance are those who have reason to believe that they are likely to die soon.
- The people who are most eager to buy annuities are those who have reason to believe that they will live for a long time. (An annuity is a promise to pay somebody a fixed amount every year until he or she dies.)

Actions Made by Financial Intermediaries to Reduce Adverse Selection

1. Screening- (This happens before a loan is made) Financial intermediaries develop and implement screening techniques to identify the good risk types and the bad risk types.
2. Monitoring-(This happen after a loan is made). Banks monitor the borrower to make sure that funds are used as agreed in the loan contract.
3.

Moral Hazard- Occurs when the lender is subject to the risk that the borrower will engage in risky activities that jeopardize repayment while seeking high returns. Given the information gathered by the lenders about the borrowers, there is always a chance that, after the borrowers receive the funds, the funds are not used as intended.

Payments and Settlements System

This helps ensure the safe, timely and accurate payment and settlement of financial transactions. The BSP is the owner and operator of the Philippine Payments and Settlements System (PhilPaSS)- a real-time gross settlement system where settlement is done thru the member-banks' demand deposit accounts maintained with the BSP.

The following are the PhilPass Transactions:

1. Interbank lending/borrowing
2. Remittance of BIR and BOC taxes/duties
3. High-value customer payments
4. Settlement of of remittances
5. Settlement of ATM transactions
6. Settlement of checks clearing operations
7. Government Securities trading
8. BSP's open market trading operations
9. Foreign currency BSP's open market trading

Payment System

A payment system consists of a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money. In simple terms, "money" is regarded as cash (i.e. notes and coins issued by the government or central bank) or claims against credit institutions in the form of deposits. The use of bank deposits to make payments has become an important medium in most developed countries and to make a payment, the payer must issue an instruction in the form of a paper-based instrument (e.g. a check) or an electronic instruction (e.g. using a credit or plastic card). The effectiveness of payment activities is fully dependent on the arrangements that facilitate fund transfers between members and it is through these arrangements that constitute a "payment system". Payment Systems consist therefore of networks that link the members with existing rules and procedures for the use of this infrastructure.

A Payment System normally requires the following:

- •Standard methods of transmitting payment messages between members
- •Agreed means of settling claims within the members/participants (normally through the deposits of the members/participants with the central bank)
- •Common operating procedures and rules (admission, fees, operating hours)

Payment systems are vital part of the economic and financial infrastructure. Their efficient functioning, allowing transactions to be completed safely and on time, makes a key contribution to overall economic performance. Payment systems, however, can also involve significant exposures to risks for members. It is for this reason that central banks have always taken into account the design and operation of payment systems additional control features to mitigate these risks.

Importance of the payment systems

Payment systems allow safe and timely completion of transactions. Various payment systems are normally used by companies to buy or sell goods and services; individuals rely on them to receive their salaries and for retail purchases; and the government depends on them to receive taxes and pay benefits.

a. Payment systems allow the customers of one bank to make payments to other banks thereby minimizing the risks of fraud and erroneous payments to illegitimate creditors.

b. Payment systems are vital to the operation of financial markets as they are used to settle trading of various financial instruments such as government securities, commercial paper, stocks, foreign exchange and derivatives.

Risks in the Payment Systems

The various risks in Payment Systems are as follows:

a. Credit Risk– the risk that the counter-party will not meet an obligation for full value, either when due, or at any time thereafter. It includes both the risk of loss of unrealized gains on unsettled contracts with the defaulting party and more importantly, the risk of loss of the whole value of the transaction.
b. Liquidity Risk– the risk that the counter-party will not settle an obligation for full value when due. This could adversely affect the expected liquidity position of the payee and may force the payee to cover its cash flow shortage by funding from other sources to meet its obligations to others.
c. Settlement Risk– the risk that the completion or settlement in a transfer system will not take place as expected. This risk may comprise both credit and liquidity risk.
d. Operational Risk– the risk of human error or a breakdown of some component of the hardware, software, or communications systems that are crucial to settlement.
e. Legal risk– the risk of loss because of the unexpected application of a law or regulation or because a contract cannot be enforced.

Payment Instruments in the Philippines

a. **Check**- A written order from one party (the drawer) to another (the drawee, normally a bank) requiring the drawee to pay specified sum on demand to the drawer or to a third party specified by the drawer.

Checks may be used for settling debts and withdrawing money from banks. In the Philippines, banks exchange checks through the Electronic Check Clearing System (ECCS) of the Philippine Clearing House Corporation (PCHC) for processing and settlement through their demand deposit accounts (DDA) that are maintained with the BSP. Checks are commonly used by consumers for bills and small value payments and for businesses for their regular payments such as purchase of goods and services.

b. **Credit Card**- A card indicating that the holder has been granted a line of credit. It enables the holder to make purchases and/or withdraw cash up to a prearranged ceiling; the credit granted can be settled in full by the end of a specified period or can be settled in part, with the balance taken as

extended credit. Interest is charged on the amount ofany extended credit and the holder is sometimes charged an annual fee

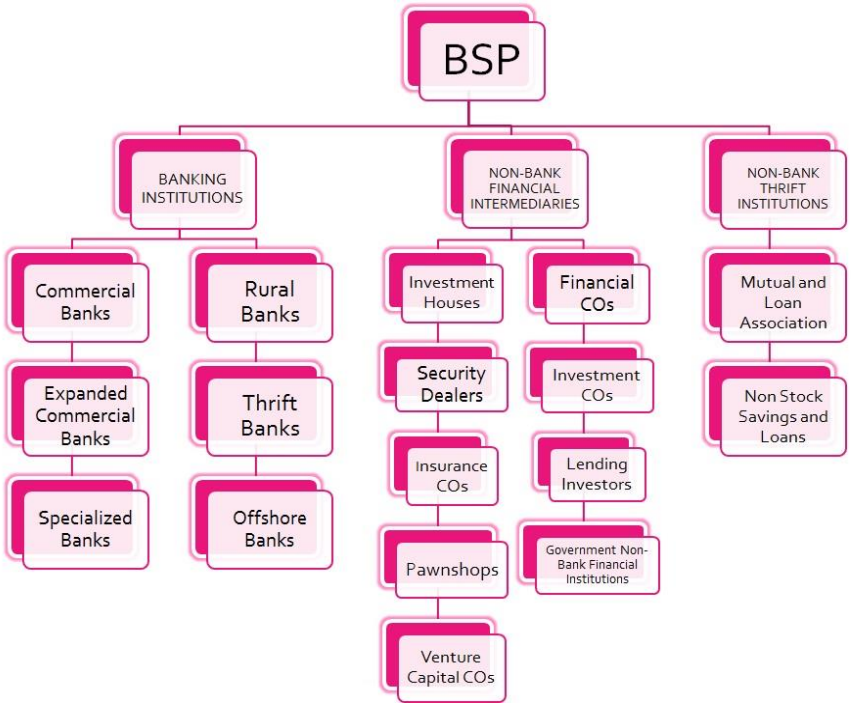
Credit cards in the Philippines are usually issued by the banks which have formed part of their marketing strategy to increase the number of their customer base and improve income that can be generated from retail and consumer business. Credit card use is no longer limited to the ordinary purchase of goods and services by the cardholders. Banks have expanded its usage for other purposes such as cash advance, easy installment plan for purchases, link-up to savings and checking accounts of cardholders etc. to attract more customers. The most common credit cards being used are the Visa, MasterCard, BanKard, JCB, Unicard, Diners Card, and American Express Card.

c. **Debit Card**- enable the holder to have his purchases directly charged to funds on his account at a deposit-taking institution (may sometimes be combined with another function e.g. that of a cash card or check guarantee card).The existing ATM networks (BancNet, MegaLink, ExpressNet, Nationlink and Encash) have developed their own Point-of-Sale (POS) System to allow their depositors to pay for their purchases electronically through their ATMs for credit to the retailer's account.

d. **Stored Value Card**- Stored Value Cards are prepaid card in which the record of funds can be increased as well as decreased. Also called an electronic purse. In the Philippines, these cards are commonly single use instruments and non-reusable. Typical examples of single use cards are those issued by the the Light Rail Transit Authority, Metro Rail Transit Authority, and telecommunications companies. A bank pioneered also the use of multi-purpose reloadable e-Cash that can be used for cash withdrawal through the bank's counter or automated teller machines or payment of bills to the accredited establishment of the e-Cash issuer.

e. **Electronic Money** - A value stored electronically in a device such as a chip card or a hard drive in a personal computer. Also known as e-money. The BSP classify e-money further as monetary value stored electronically in an instrument or device which can be converted back to cash, and if issued by a bank, shall not be considered as deposit. Two of the most popular form of e-money in the Philippines are SMART Money and Globe's G-Cash.

The Philippine Financial System



The Bangko Sentral ng Pilipinas is responsible for implementing monetary policy and regulation of the banking system while the Insurance Commission (IC) supervises the operations of the insurance companies. On the other hand, the Securities and Exchange Commission (SEC) works with the BSP and IC in supervising and regulating the activities of the financial institutions in the country.

Type of Institution	Components	Regulator
Banking Institution	Universal banks	BSP, SEC
	Commercial Banks	BSP, SEC
	Thrift Banks	BSP, SEC
	Rural Banks	BSP, SEC
	Specialized Government Banks	BSP, SEC
Non-Bank Financial Institutions	Investment House	BSP, SEC
	Financing Companies	SEC
	Securities Dealer	SEC
	Investment Companies	SEC
	Insurance Companies	SEC, IC
	Lending Investors	SEC
	Pawnshops	SEC
	Government Non- Bank Financial Institution	SEC
	Venture Capital Corporation	SEC

Universal and commercial banks_represent the largest single group, resource-wise, of financial institutions in the country. They offer the widest variety of banking services among financial institutions. Commercial banks are organized primarily to accept drafts and issue letters of credit, discount and negotiate promissory notes, drafts, bill of exchange and other evidences of indebtedness, receive deposits, buy and sell foreign exchange and lend money on a secured or unsecured basis. In addition to the function of an ordinary commercial bank, universal banks are also authorized to engage in underwriting and other functions of investment houses, and to invest in equities of non-allied undertakings.

The thrift banking system is composed of savings and mortgage banks, private development banks, stock savings and loan associations and microfinance thrift banks. Thrift banks are engaged in accumulating savings of depositors and investing them. They also provide short-term working capital and medium- and long-term financing to businesses engaged in agriculture, services, industry and housing, and diversified financial and allied services, and to their chosen markets and constituencies, especially small- and medium- enterprises and individuals.

a. **Savings banks**- are banks organized for the purpose of accumulating saving deposits and investing them for specified purposes.
b. **Private Development Banks**-are banks that are organized primarily to cater to the capital needs and demand for investment credit or medium to long-term loans for the promotion of growth of industry and agriculture at reasonable costs.
c. **Stock savings and loan association**-are institutions engaged in the accumulation of savings mainly of stockholders in specified undertakings. They are primarily concerned with servicing the needs of the household by providing personal finance and long-term financing for home building and development.
d. **Microfinance banks**- are banks that provide a broad range of financial services such as deposits, loans, payment services, money transfers and insurance products to the poor and low-income households for microenterprise and small businesses to raise their income levels and improve their living standards.

Rural and cooperative banks are the more popular type of banks in the rural communities. Their role is to promote and expand the rural economy in an orderly and effective manner by providing the people in the rural communities with basic financial services. Rural and cooperative banks help farmers through the stages of production, from buying seedlings to marketing of their produce. Rural banks and cooperative banks are differentiated from each other by ownership. While rural banks are privately owned and managed, cooperative banks are organized/owned by cooperatives or federation of cooperatives.

Specialized Government Banks are organized to serve a particular purpose. The existing specialized banks are the Development Bank of the Philippines, Land Bank of the Philippines and Al-Amanah Islamic Bank of the Philippines.

Non banks with quasi-banking functions consist of institutions engaged in the borrowing of funds from 20 or more lenders for the borrower's own account through issuances, endorsement or assignment with recourse or acceptance of deposit substitutes for purposes of relending or purchasing receivables and other obligations.

a. **Investment Houses**-are financial enterprises primarily engaged in the underwriting of securities of other enterprise including securities issued by the National Government and its instrumentalities.
b. **Financing Companies**-are companies engaged in extending credit facilities to consumers and agricultural enterprises either by discounting or factoring commercial papers or accounts receivables or other evidences of indebtedness or by leasing motor, vehicles, machinery and equipments, appliances, and other movable properties.
c. **Securities Dealers/Brokers**-securities dealers refer to persons or financial entities authorized to engage in business of effecting transactions in securities for their own account. They do not get commission but derive income from trading, representing the difference between the buying and selling prices of securities. Brokers refer to those engaged in the business of effecting transactions in securities for the account/risk of others. They earn commissions out of their intermediary transactions.
d. **Investment Companies**-are institutions primarily engaged in investing, reinvesting or trading securities. Investment companies pool money from a large group of investors who have similar objectives, allowing small investors to participate in the capital market as this call for a low initial investment requirement.

Non-banks without quasi-banking functions

a. **Lending investors**- pertain to individuals or entities engaged exclusively in the business of extending secured or unsecured direct loans to individuals and enterprises. They use their own capital for the purpose of extending all types of loans.
b. **Pawnshops**-are business establishments engaged in lending money on personal property delivered as security or pledge.
c. **Insurance Companies**-are corporations which undertake to indemnify another against loss, damage or liability arising from an unknown or contingent event by a contract of insurance, and which holds a certificate of authority from the Insurance Commission. The activities of insurance companies include general insurance, life insurance, non-life insurance and reinsurance.
d. **Venture capital corporations**- are entities organized jointly by private banks, the National Development Corporation (NDC) and Technology and Livelihood Resource Center (TLRC) and other government agencies as may be authorized by the appropriate body.. Their primary purpose is to develop, promote, and assist, through debt or equity financing or any other means, any small and medium scale enterprise in the country.

EXERCISES AND ASSESSMENT

1. How does the BSP supervise and regulate financial institutions?

2. How can adverse selection problem explain why you are more likely to make a loan to a family member than to a stranger?

3. How can the existence of asymmetric information provide the rationale for government intervention?

4. What steps can the government take to reduce asymmetric information problems and help the financial system function more smoothly and efficiently?

5. “Because diversification is a desirable strategy for avoiding risk, it never makes sense for a bank to specialize in making specific types of loans.” Is this statement true, false, or uncertain? Explain your answer.

6. Identify the following:

_____6.1. A bank which performs the investment house functions in addition to its banking operation.
_____6.2. A financial market in which securities that have previously issued can be resold.
_____6.3. Provides financial support in the implementation of the Agrarian Reform Program.
_____6.4. It is designed to render services to persons and companies that require protection from risks related to life and commerce.
_____6.5. The chance that the issuer of debt instrument will be unable to make interest payments or pay off the face value when the instrument matures.
_____6.6. The risk that one party to a transaction will engage in behavior that is undesirable from the other party's point of view.
_____6.7. A financial market in which securities that has been previously issued can be sold.
_____6.8. Serves as a market for the sale and transfer of ownership of shares of stocks or equities of corporations.
_____6.9. The problem created by asymmetric information before a transaction occurs.
_____6.10. The process of indirect finance whereby financial intermediaries link lenders-savers and borrowers-spenders.

LESSON 6

INSTRUMENTS AND STRATEGIES OF MONETARY POLICY

Learning Outcomes*: At the end of this chapter, students are expected to:*

1. *Discuss the different instruments of monetary policy and how these affect money supply*
2. *Discuss the transmission mechanism of monetary policy*
3. *Explain the monetary aggregate and interest targeting of the Central Bank.*

The BSP has several instruments to carry out its monetary policy.

1. **Open market operations (OMO)** – Is one of the instruments used in order to expand or contract the supply of money in circulation. It involves the buying or selling of government securities from banks and financial institutions of the BSP in order. For instance, an **open market purchase** of securities by the BSP from banks results in an increase in the banks excess reserves and an increase in the supply of money. Moreover, an **open market sale** of securities by the BSP to banks results in a decrease in the banks excess reserves and a decrease in the supply of money.

   Repurchase (repo)/reverse repurchase (reverse repo) agreements and outright purchases and sales of securities are the two instruments used by the BSP in the conduct of the open market operation.

   Repurchase Agreements (RPs) are transactions wherein the CB buys government securities from banks with a commitment to sell them after a specified period for a certain consideration e.g., interest rate. In contrast, *Reverse RPs* (RRPs) are transactions whereby CB borrows funds from banks using its holdings or inventory of government securities in its portfolio as collateral with an agreement to repay the loan (and hence buy back the securities) at a specified rate and period of time. A repurchase transaction expands the level of money supply as it increases the bank's level of reserves while reverse repo contracts the supply of money.

   The effect of both Repos is only temporary because the parties involved commit to reverse the transaction at an agreed future date. At present, the BSP enters into repo agreements for a minimum of one (1) day (overnight) for both repos and a maximum of 91 days and 364 days for repo and reverse repo agreements, respectively.

   Outright purchases and sales of securities. This involves the direct purchase/sale of government security by the BSP from/to the market for the purpose of increasing/decreasing money supply on a more permanent basis. In such a transaction, there is no commitment for both parties to reverse the transaction in the future, creating a more permanent effect on the banking system's level of money supply.

2. **Rediscounting** is a standing credit facility provided by the BSP to help banks meet temporary liquidity needs by refinancing the loans they extend to their clients. The rediscounting facility allows a financial institution to borrow money from the BSP using promissory notes and other loan papers of its borrowers as collateral. If an individual borrowed Php 1,000,000.00 from Land Bank of the Philippines at 10% using his title of land as a collateral, he will only receive Php 900,000.00. Consequently, the LBP's cash on vault is reduced by Php 900,000.00. If LBP avails of a 5%

rediscounting rate, by passing the collateral to BSP, LBP will receive Php 950,000.00. Without waiting for a month-long period, it earned Php 50,000.00. By availing of this, the bank can use that money for another client and earn more.

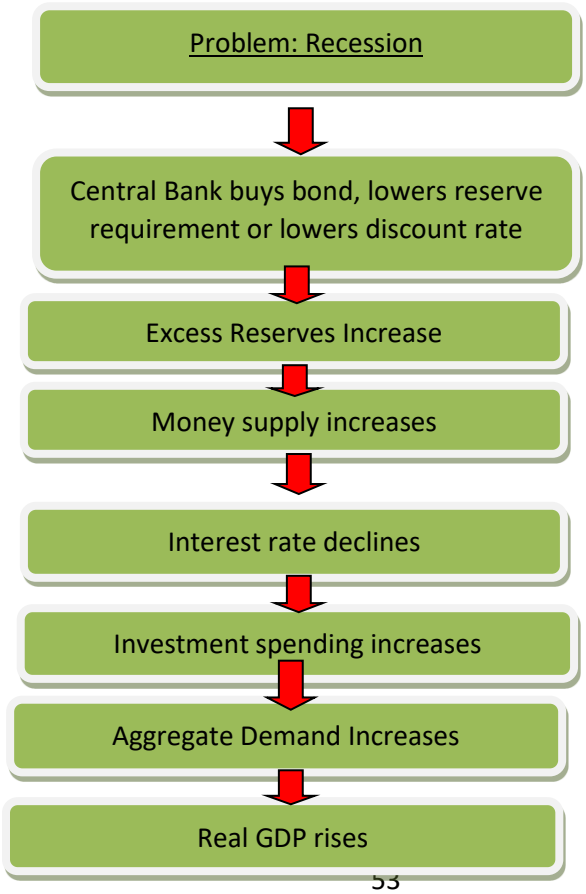
3. **Reserve Requirement** is employed as a protection to depositors by ensuring liquidity or solvency and to meet the withdrawals of depositors. Let's say Mrs. Samaniego deposits P1,000, 000.00 in Land Bank of the Philippines. The BSP requires LBP to keep 10% of deposits, for instance, in its reserves. Therefore, LBP can use only P900, 000.00 of Mrs. Samaniego's money for its loans and investments while if BSP imposes 20% reserve requirement it can use only P800,000.00 for its activities. Changes in reserve requirements have a significant effect on money supply in the banking system, making them a powerful means of liquidity management.

4. **Direct Controls** consist of quantitative and qualitative limits on the ability of banks to undertake certain activities. The most common types of direct controls include limitations on aggregate bank lending, selective limitations on certain types of bank lending and interest rate regulations.

5. **Moral Suasion** is defined as the influence that the Central Bank exercises to induce or convince banks to conduct operations in a manner that would contribute to the attainment of monetary goals but may not contradict profit maximization objectives of banks in the short run. It may take the form of a request for voluntary restraint on overall lending or a suggested priority in lending to different sectors of the economy.

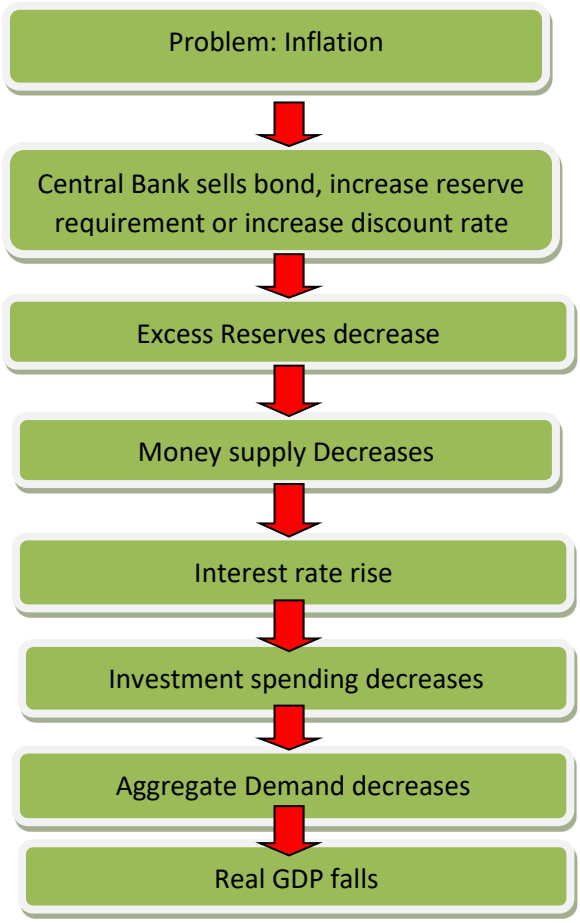
Monetary Policy for Recession and Inflation

A. Easy Monetary Policy



The goal of an easy monetary policy is to reduce unemployment during recessionary period. Therefore, the tool would be an increase in the money supply. To increase money supply, the Central Bank will take some combination of the following actions; buy government securities from banks and the public, lower reserve requirement and lower discount rate. The outcome would be an increase in excess reserves and thus, an increase in money supply. An increase in money supply will lower interest rate, increasing investment, aggregate demand and real GDP. This would shift the AD curve to the right decreasing unemployment, but it may also cause some inflation.

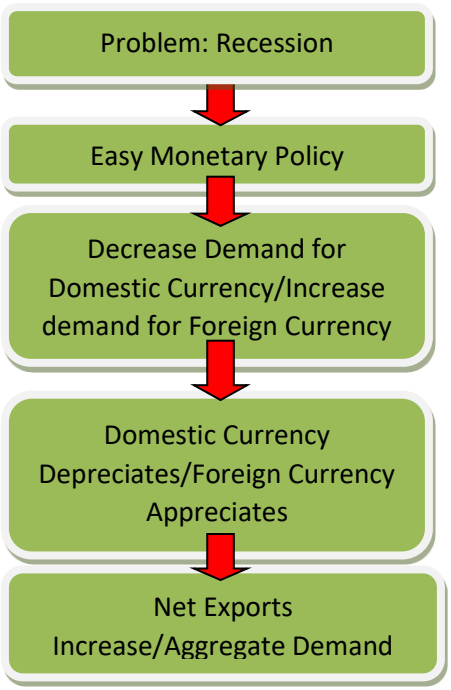
B. Tight Monetary Policy



The goal of a tight monetary policy is to reduce inflation. Therefore, the tool would be a decrease in the money supply. Central Bank will sell government securities to the banks and the public, increase the reserve requirement or increase the discount rate in order to decrease the supply of money. Banks will then realize that their reserves are below than those required by the Central Bank. The Central Bank needs to reduce their checkable deposits by refraining from issuing new loans, thus, lowering the supply of money. The decrease in money supply will result to an increase in interest rate. The higher the interest rate will discourage investment, lowering aggregate demand and restraining inflation. This would shift the AD curve to the left decreasing inflation, but it may also cause some unemployment.

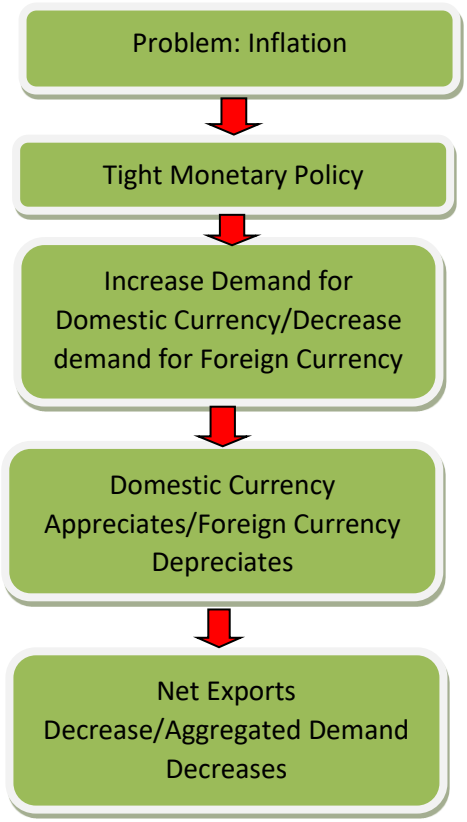
Monetary Policy and the Net Export Effect

A. Easy Monetary Policy


Problem: Recession
Easy Monetary Policy
Decrease Demand for Domestic Currency/Increase demand for Foreign Currency
Domestic Currency Depreciates/Foreign Currency Appreciates
Net Exports Increase/Aggregate Demand

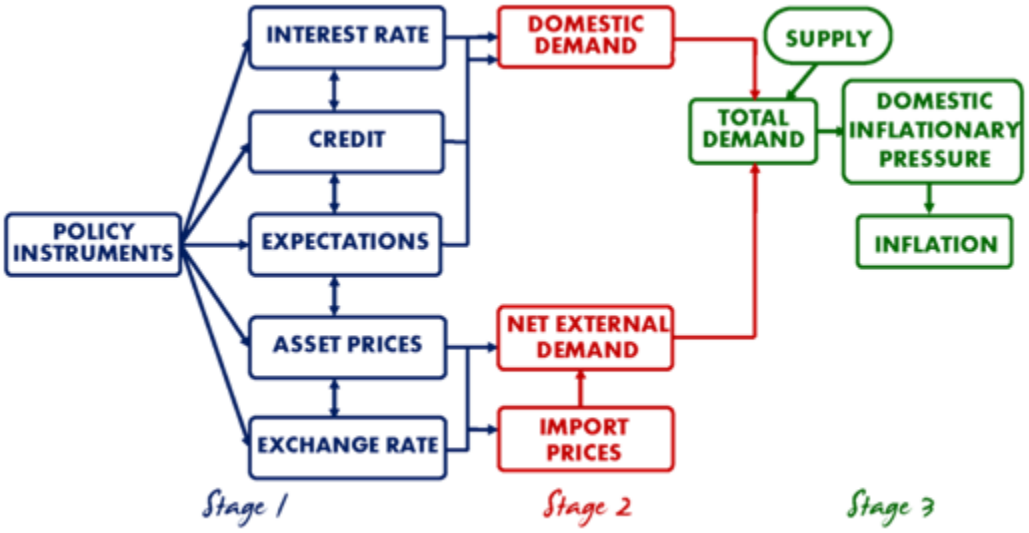
The adoption of an easy monetary policy during recession has an effect to the level of exports and imports in an economy. When the Central Bank uses an easy monetary policy, the demand for domestic currency will decrease because of the decline in the level of interest rate. The decrease in interest rate will discourage foreign investors to invest in the country, thus, resulting to a decrease in the demand for domestic currency but an increase in the demand for foreign currency because domestic investors will bring their investments to other countries that offer a higher interest rate. The decline in the demand for domestic currency leads to the depreciation of the domestic currency which make the domestic products attractive to other countries, therefore, the level of exports and aggregate demand will increase.

B. Tight Monetary Policy


Problem: Inflation
Tight Monetary Policy
Increase Demand for Domestic Currency/Decrease demand for Foreign Currency
Domestic Currency Appreciates/Foreign Currency Depreciates
Net Exports Decrease/Aggregated Demand Decreases

A tight monetary policy results to an increase in the interest rate which encourages capital inflows. Investors see that investing in a country that offer a higher interest rate is profitable. This results to an increase in the demand for domestic currency which in turn leads to the appreciation of the domestic currency. The effect of the appreciation of the domestic currency is an increase in the level of imports/decrease in exports.

Transmission Mechanism of Monetary Policy



The transmission mechanism of monetary policy allows monetary policy to affect real economic activity and inflation through various channels, particularly through market interest rates, the foreign exchange rate, the volume and allocation of credit, portfolio effects induced by asset price changes, and induced changes in agents' expectations. There are two important aspects to consider in evaluating the transmission of monetary policy. The first is the transmission from the instruments directly under the central bank's control (eg, short-term interest rates or reserve requirements) to variables that most directly affect conditions in the non-financial sector (loan rates, deposit rates, asset prices and the exchange rate). The second is the link between financial conditions and the spending decisions of both households and firms.

Interest rate Channel

A change in the central bank policy rate has an immediate impact in the money market A rise in the policy rate generally leads to an immediate rise in interbank and treasury bill rates, although not necessarily by the same amount; this depends among other things on the securities' maturity compared with that of the instrument priced by the policy rate, and how actively the instrument in question is traded. Interest rates on commercial banks' short-term instruments should rise relatively quickly, since they are normally financed to a large extent in the money markets.

In the Philippines, the policy interest rates consist of the BSP's overnight reverse repurchase (RRP) or borrowing rate and overnight repurchase (RP) or lending rate. The policy rates are set by the Monetary Board, which is the policymaking body of the BSP. By affecting the level of liquidity, the change in the level of the BSP's policy rates influences the benchmark 91-day Treasury bill rate, banks' lending rates, deposit rates and the whole spectrum of market interest rates. In particular, the short-term market interest rates track closely the movements in the BSP's policy rates.

The interest rate channel has 3 stages. The first stage is that a change in the official interest rate set by the Monetary Board that will affect other interest rates. Banks, and other financial institutions have to react to any official rate change by changing their own savings and loan rates. The change will also affect the prices of many assets: shares, houses, security prices and so on. The exchange rate may change as demand for money adapt to the new level of interest rates. Finally, there may also be an effect on the expectations of both firms and individuals. They may become more or perhaps less confident about the

future path of the economy. The second stage is that all these changes in markets will affect the spending patterns of consumers and firms. In other words, there will be an effect on aggregate demand. Higher interest rates are likely to reduce the level of aggregate demand, as consumers are affected by the increase in the rates and may look to cut back spending. There will also be international effects as the level of imports and exports change in response to possible changes in the exchange rate. The third stage is the impact of aggregate demand change on GDP and inflation. This will tend to depend on the relative levels of aggregate demand and supply. If there is enough capacity in the economy then an increase aggregate demand may not be inflationary. However, if the economy is already at bursting point producing as much as it can, then further aggregate demand increase may be inflationary.

Credit Channel

In conditions when there is no full redundancy in bank deposits of economic entities other sources of funds, bank credit channel of monetary transmission will work in the following manner: (a) in the case of expansionary monetary policy, comes an increase in reserves and deposits of banks, which affects the growth of the volume of bank loans and debt, and increase investment and gross domestic product; (b) in the case of restrictive monetary policy, the decrease of bank loans and debt, with the reverse effects on investment and gross domestic product

Exchange rate Channel

The Philippines' exchange rate policy, which supports a freely floating exchange rate system whereby the BSP leaves the determination of the exchange rate to market forces, with some scope for occasional BSP action to dampen sharp fluctuations in the exchange rate, is considered consistent with the inflation targeting (IT) framework for monetary policy. Indeed, the credibility of the IT framework is influenced in large part by the commitment to a flexible exchange rate regime. Under its IT framework, the BSP closely monitors developments in the foreign exchange market and, when necessary, uses adjustments in policy instruments (eg, policy interest rates, reserve requirements) in cases where extreme movements in the peso threaten the inflation target. The BSP's response to exchange rate volatility is consistent with price stabilization since fluctuations in the exchange rate tend to feed directly into domestic prices of imported goods and services, and indirectly through to the prices of goods and services that use imported inputs. The increase in prices of both the imported and import-intensive goods in turn feed into demand for adjustments in wages and transport fares. Through this channel, exchange rate movements affect both actual inflation and inflation expectations.

Monetary policy, through the influence of interest rates on exchange rates, affects net exports. Higher interest rates mean a stronger currency, a stronger currency impact on reducing the net export demand and production. Conversely, lower interest rate weakens the domestic
currency; currency depreciation affects the growth of exports and gross domestic product. Also, exchange rate changes affect the price of imported goods and services, which leads to direct price growth.

Asset Prices Channel

Higher interest rates reduce the share price. The lower value of shares leads to a decrease of financial wealth and less wealth means less spending. The fluctuations in asset prices influenced real aggregates, such as household consumption and investments as well as inflation, which broadly moved in tandem with asset price changes.

Expectations Channel

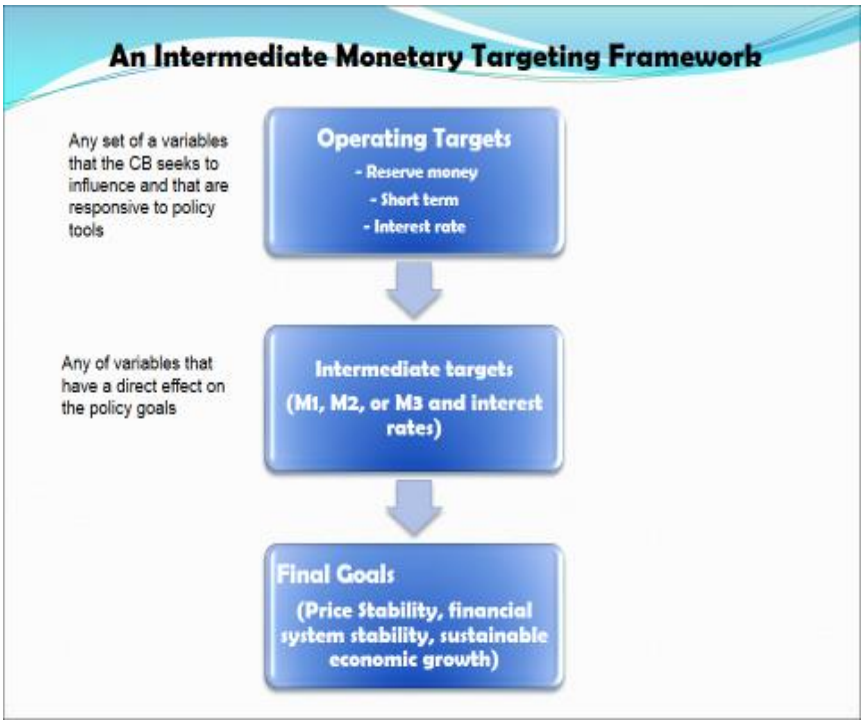
Expectations about the future developments of, for example, economic growth and inflation are a major determinant of the ultimate impact of monetary policy actions. Monetary policy can affect these expectations and the confidence with which they are held. Such changes in expectations influence the behavior of financial market participants and other agents in the economy, including individuals' expectations about employment prospects and firms' expectations about future sales and profits. Monetary policy can thus, affect the behavior of individuals and firms through their expectations; such effects may even become evident before those which are channeled through the price and volume of the various financial assets discussed above. Even expected monetary policy decisions can affect behavior, without actually being implemented. However, the precise impact of monetary policy on expectations is difficult to ascertain precisely, and probably varies from one time to another. In general, a rise in the policy rate would be interpreted as signaling a need to slow down the economy in order to achieve the inflation target, with future growth prospects deteriorating and inflation expectations falling if the policy action is credible. Such a response would reinforce the bank's efforts to raise interest rates to curb excess demand in the economy. If the policy action lacks credibility, e.g. if the public regards the bank's efforts to slow down the economy as inadequate, expectations of further interest rate rises could arise, which would magnify the contraction impact. A higher policy rate could even be interpreted as reflecting that the bank views that the economy is growing faster than had earlier been thought, thereby spurring future growth expectations. This response could diminish the tightening imposed by the interest rate rise. Uncertainty about monetary policy's effects on expectations and confidence in the economy thereby increases the uncertainty surrounding its effects on other economic variables, which underlines the importance of a credible and transparent monetary policy.

Monetary Aggregates and Interest Rates Targeting

A money supply target means that the Central Bank uses its tools in order to reach a certain money supply level in the economy.

An interest rate target means that the Central Bank uses its tools in order to reach a certain interest rate in the economy.

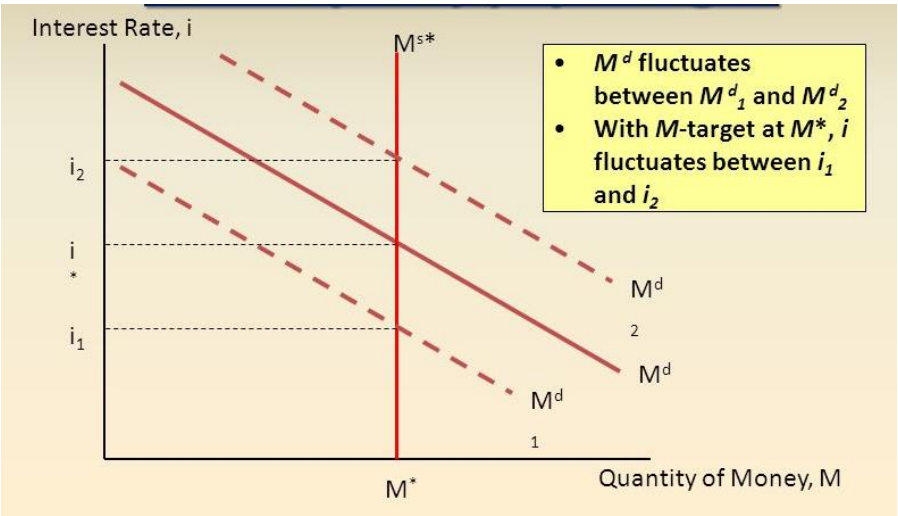
All Central Banks pursue a different strategy for conducting monetary policy by aiming at variables that lie between its tools and the achievement of its goals. After deciding on its goals for employment and price level, the Central Bank chooses a set of variables to aim for, called intermediate targets, such as the monetary aggregates or interest rate which have direct effect on employment and the price level. However, these intermediate targets are not directly affected by BSP's policy tools. Then it chooses another set of variables called operating targets.


An Intermediate Monetary Targeting Framework
Any set of a variables that the CB seeks to influence and that are responsive to policy tools
Operating Targets
- Reserve money
- Short term
- Interest rate
Any of variables that have a direct effect on the policy goals
Intermediate targets
(M1, M2, or M3 and interest rates)
Final Goals
(Price Stability, financial system stability, sustainable economic growth)

Before, BSP conducted monetary policy through monetary targeting. This approach aimed at influencing the behavior of monetary aggregates. The BSP monitors the M1, M2, M3 and M4. BSP believed that there were stable and predictable relationships between money and the price level. In effect, the BSP controlled inflation indirectly by controlling money supply.

But due to financial liberalization and financial innovation, the changes have caused large fluctuations in the money multiplier.

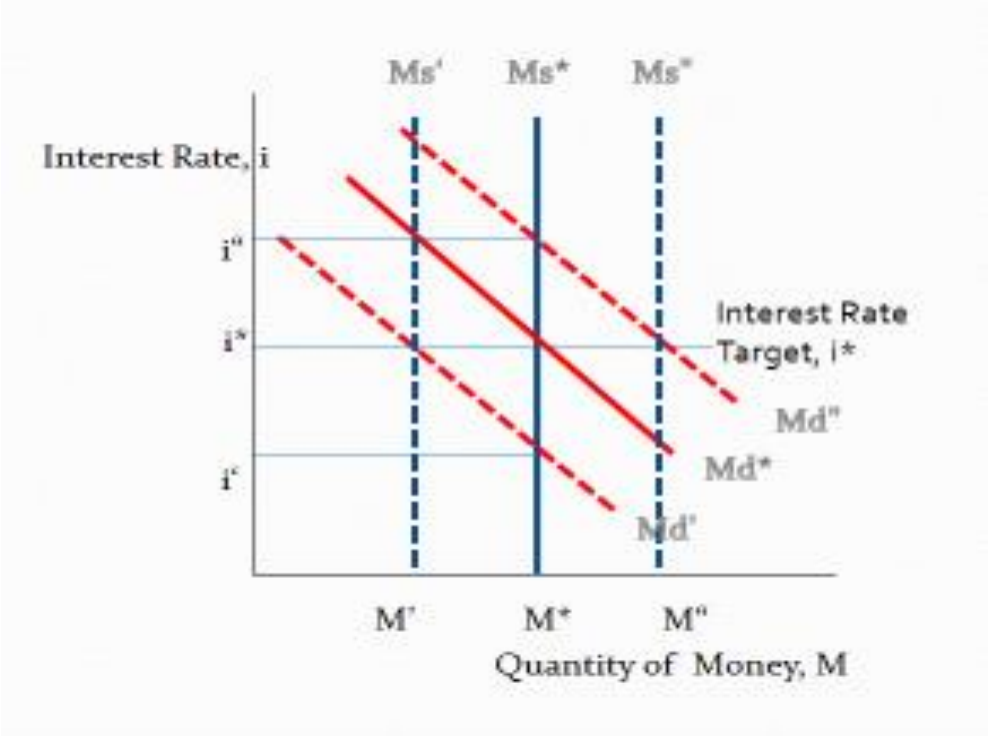
Monetary Targeting



The figure above contains the demand and supply of money diagram for the money market. The money demand curve fluctuates because of unexpected increases or decreases in output or changes in

the price level. Let say that the Central Bank wants to reach Ms^* level of money supply. If output increases, money demand curve will shift to the right to Md^2. That changed in money demand causes the interest rate to increase from i^* to i_2. If the Central Bank wants to maintain Ms^* as a target, then interest rate must be given up since it will increase from i^* to i_2.

Interest Rate Targeting



The money demand curve fluctuates because of unexpected increases or decreases in output or changes in the price level. If output increases, money demand curve will shift to the right to Md^2. If the Central Bank wants to maintain interest rate at i^*, then the Central Bank must use an expansionary monetary policy, thus, resulting to a rightward shift of the money supply curve from Ms^* to $Ms^"$. Interest rate target of i^* is now achieved.

The supply of money and demand for money analysis concludes that interest rate and monetary aggregate targets are incompatible. A central bank can only hit one target i.e. monetary aggregates or interest rate. Central Bank must give up the money supply target to achieve an interest rate target or vice versa.

The most-used tool to affect the interest rate and/or change the money supply is open market transaction (i.e. the buying and selling of bonds). Below is the effect of an open market transaction to money market, bond market, interest rate and output.

CB Action	Bond Price Effects	Money supply Effects	Interest Rate Effect	Output (Y) Effects
Buy bonds	Increase	Increase	Decrease	Increase
Sell bonds	Decrease	Decrease	Increase	Decrease

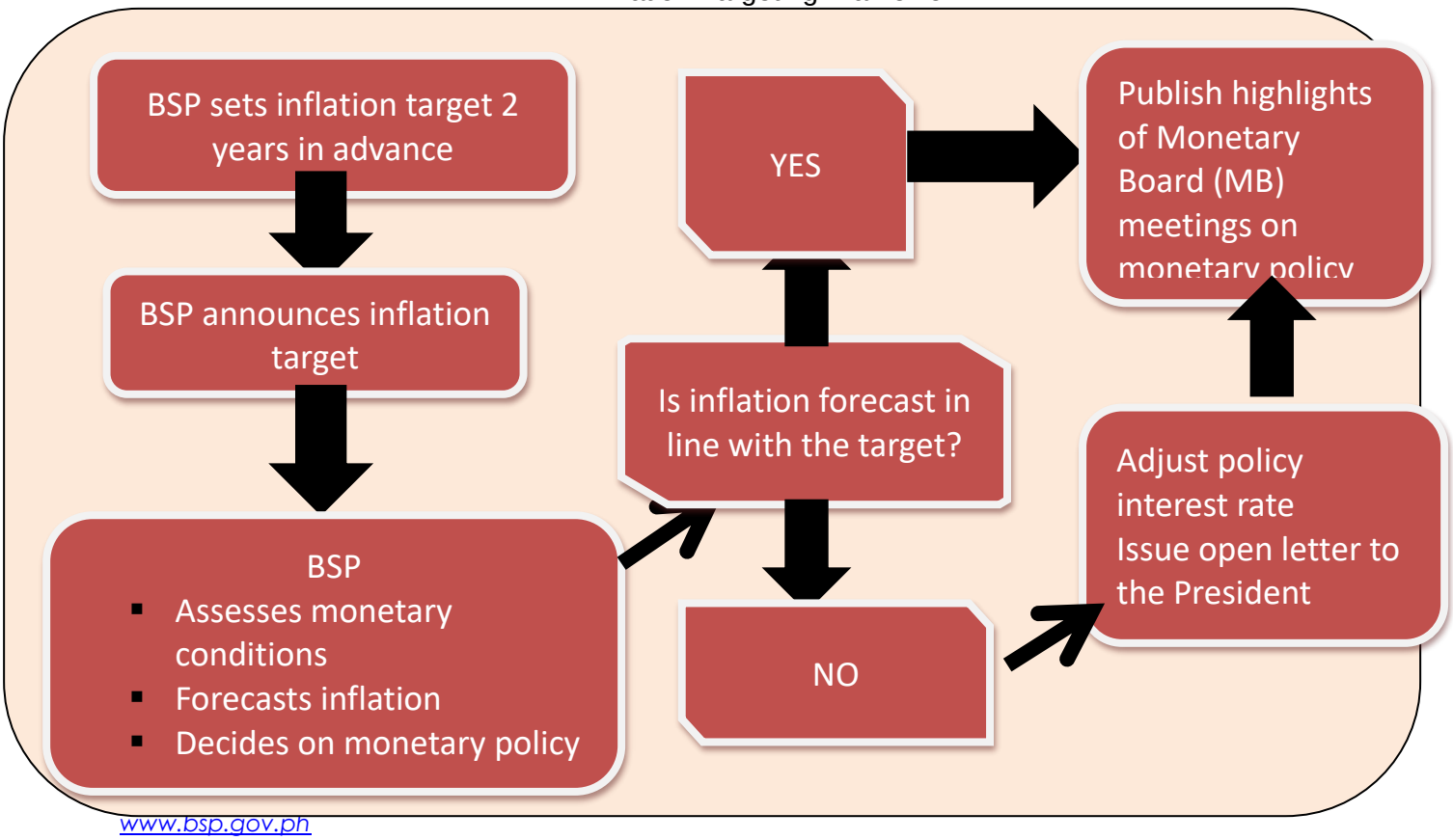
Inflation Targeting

The primary objective of the BSP's monetary policy is “to promote price stability conducive to a balanced and sustainable growth of the economy” (Republic Act 7653).

Inflation targeting is an approach to monetary policy by the Bangko Sentral ng Pilpinas that involves the use of a publicly announced inflation target set by the Government, which the BSP commits to achieve over a two-year horizon. The government's inflation target is defined in terms of the average year-on-year change in the consumer price index (CPI) over the calendar year. The inflation targets have been set at 3.5 percent with a tolerance interval of ± 1.0 percentage point for 2009 and 4.5 percent with a tolerance interval of ± 1.0 percentage point for 2010.

Inflation targeting was formally adopted as a framework for monetary policy by the BSP in January 2002. The Philippines joined the list of inflation targeters such as Australia, Canada, Finland, Sweden, New Zealand, United Kingdom, Israel, Brazil, Chile and Thailand. Inflation targeting focuses mainly on achieving price stability as the ultimate objective of monetary policy. The diagram below illustrates the process involved in making inflation targeting operational.

Inflation Targeting Framework

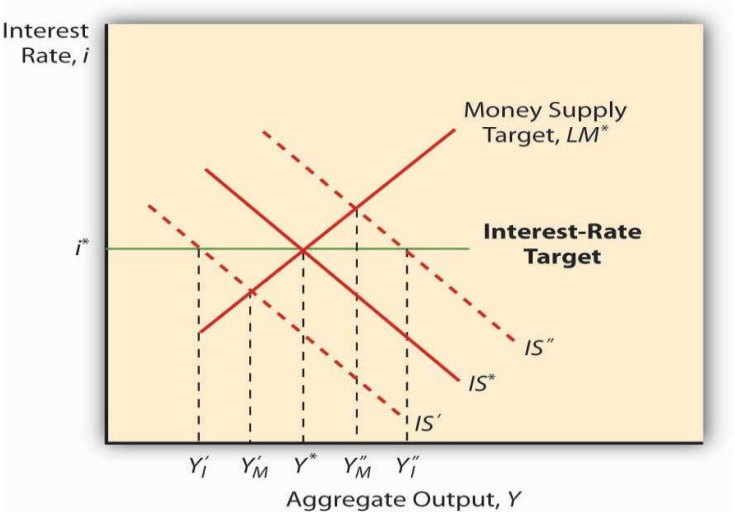

BSP sets inflation target 2 years in advance
BSP announces inflation target
BSP
Assesses monetary conditions
Forecasts inflation
Decides on monetary policy
Is inflation forecast in line with the target?
YES
NO
Publish highlights of Monetary Board (MB) meetings on monetary policy
Adjust policy interest rate
Issue open letter to the President

www.bsp.gov.ph

Implications for Monetary Policy

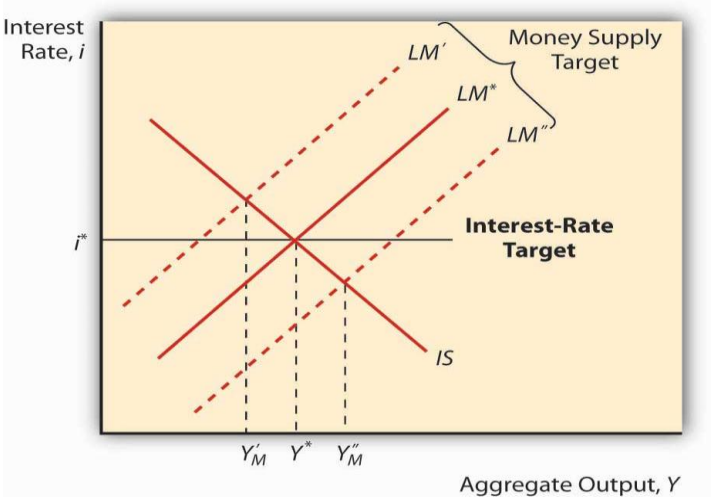
The IS-LM model has a major implication for monetary policy: when the IS curve is unstable, a money supply target will lead to greater output stability, and when the LM curve is unstable, an interest rate target will produce greater macro stability.

The Effect of IS curve Instability



Since the IS curve is unstable, IS moves left and right while LM is fixed. An interest rate target will cause Y to vary from Y"$_I$ to Y'$_I$ while money supply target will cause Y to vary from Y'$_M$ to Y"$_M$. Thus, when the IS curve is more unstable than the LM curve, money supply target is preferred.

The Effect of LM Curve Instability



When IS curve is fixed and LM moves left and right, an interest rate target keeps Y stable but a money supply target (shifts in the LM curve) will cause Y to swing from Y'_M to Y''_M. Thus, when the LM curve is more unstable than the IS curve, interest rate target is preferred.

EXERCISES AND ASSESSMENT

1. The economy is in dire despair due to high unemployment. Congress raises government spending in order to stimulate the economy. Assume the Central Bank maintains a money supply target. Draw the **money market model** showing the effects of expansionary fiscal policy on interest rates. Label subscript 0 for before the fiscal policy, and subscript 1 for after the fiscal policy. Explain the relationship between output and interest rates.

2. The economy is in dire despair due to high unemployment. Congress refuses to do anything. The Central Bank intervenes. Assume the Central Bank maintains a money supply target. Draw the **money market model** showing the effects of an expansionary monetary policy. Label subscript 0 for before the monetary policy, and subscript 1 for after the monetary policy.

3. The economy is in dire despair due to high unemployment. Congress raises government spending in order to stimulate the economy. Assume the Central maintains an interest rate target. Draw the **money market model** showing the effects of expansionary fiscal policy on interest rates. Label subscript 0 for before the fiscal policy, and subscript 1 for after the fiscal policy. Explain the relationship between output and interest rates.

4. The economy is in a dire despair due to high unemployment. You are hired as President's chief advisor. Advise the President on what he should do to reduce unemployment. Explain your proposal with a bond market graph AND Keynesian-cross model.

LESSON 7

A MODEL OF MACROECONOMIC EQUILIBRIUM

Learning Outcomes*:* *At the end of this chapter, students are expected to:*

1. *Explain the IS-LM model*
2. *Discuss the effectiveness of monetary and fiscal policy in a closed economy*
3. *Differentiate the Keynesian and Classical models and policies*
4. *Demonstrate an understanding the Mundell-Flemming Model*
5. *Discuss the effectiveness of monetary and fiscal policy in an open economy*

The IS-LM Model

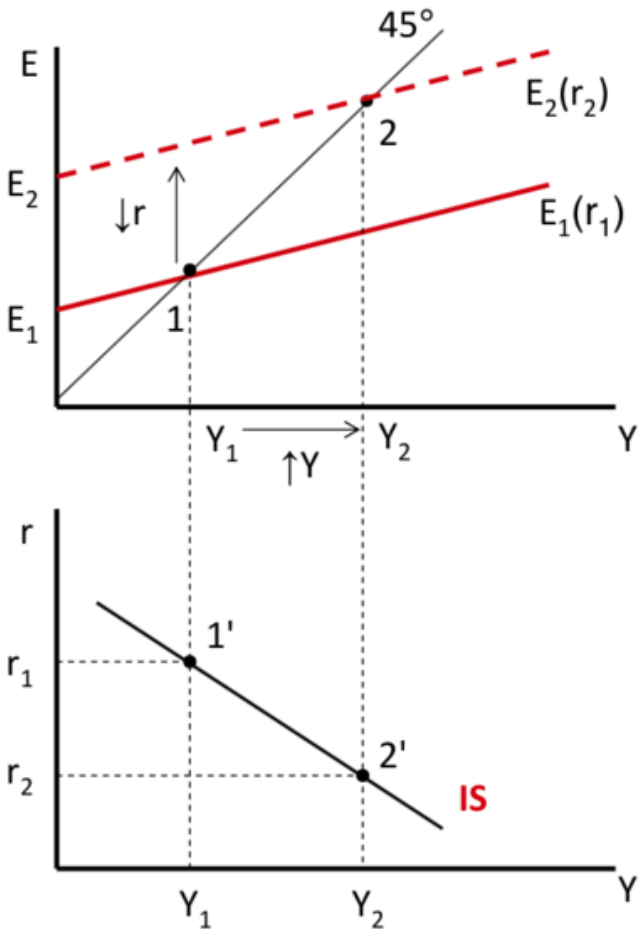
The IS-LM model is used to determine the simultaneous equilibrium in the goods and services and money markets. It allows to find the combinations of income and interest rates that guarantee the general equilibrium of the economy.

Goods market (IS Curve)- The market in which goods and services are exchanged and in which the equilibrium level of aggregate output is determined.

Money market (LM Curve) - The market in which financial instruments are exchanged and in which the equilibrium level of the interest rate is determined.

IS curve

The IS curve (I for investment and S for savings) summarizes all the combinations of income and interest rates that ensure equilibrium on the goods market.



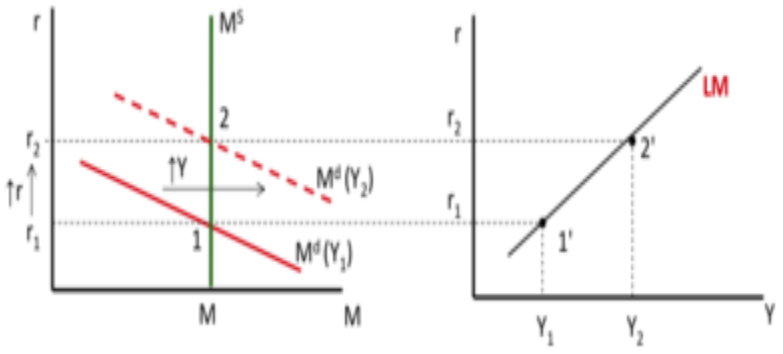
At point 1 (point 1' in the IS curve), it shows equilibrium in the goods market with the intersection of the 45^0 line and the expenditure E_1, with interest rate r_1 and Y_1 level of output.

A decrease in interest rate from r_1 to r_2 leads to a shift of the expenditure curve E_1 to E_2. Equilibrium point 2 (point 2' in the IS curve) is reached with interest rate r_2 and Y_2 level of output

Linking the points 1' and 2' in the bottom graph gives the IS curve. The slope of the IS curve reflects the responsiveness of C and I to changes in r. Any increase (decrease) in an exogenous component of the expenditure, as well as G and X, causes the IS curve to shift to the right (left).

LM curve

The LM curve (L for liquidity and M for money supply) summarizes all the combinations of income and interest rates that ensure equilibrium on the money market



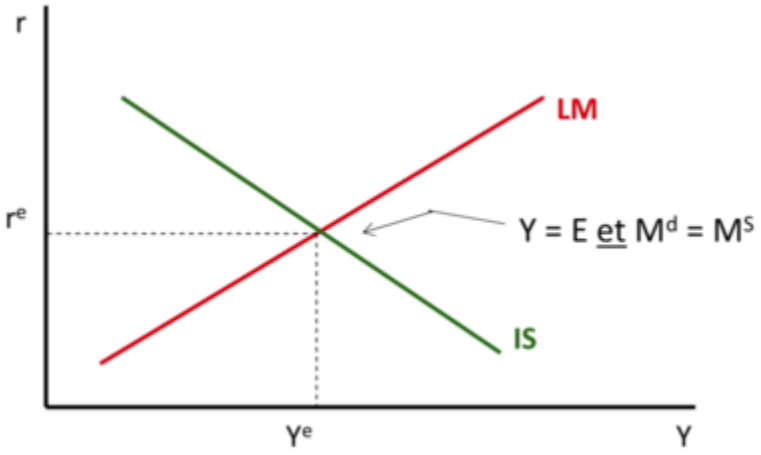
At point 1 (1' in the LM curve), it shows equilibrium in the money market with the intersection of the money demand and money supply, with interest rate r_1 and Y_1 level of output.

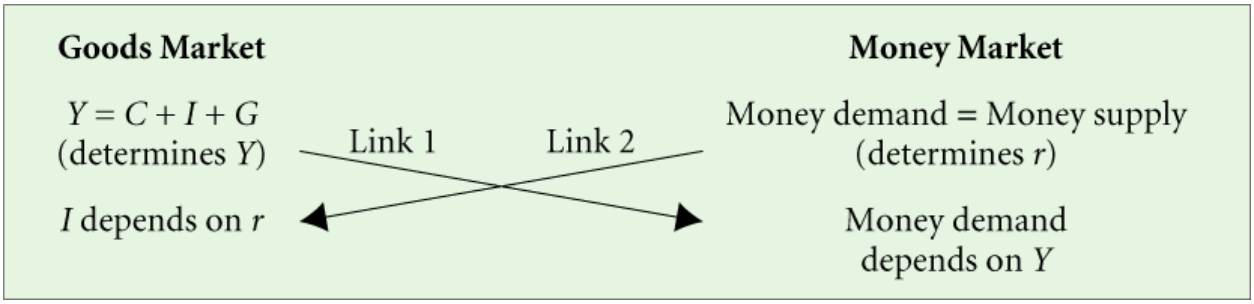
An increase in income level from Y_1 to Y_2 leads to a shift of the money demand curve from M^d (Y_1) to M^d (Y_2). Equilibrium point 2 (2' in the LM curve) is reached with interest rate r_2 and Y_2 level of output.

By connecting points 1' and 2' in the graph on the right, the LM curve is derived which shows all combinations of income and equilibrium interest rates on the money market.

Equilibrium in Both the Goods and Money Markets

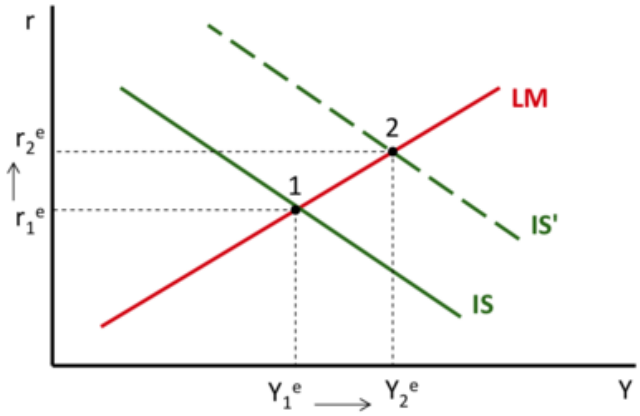
The simultaneous equilibrium of the goods market and the money market occurs at the intersection of the IS curve and the LM curve, at r^e and Y^e in the figure below.





Effects of Monetary and Fiscal Policy to Equilibrium Output and Interest Rate

Effects of an expansionary fiscal policy:

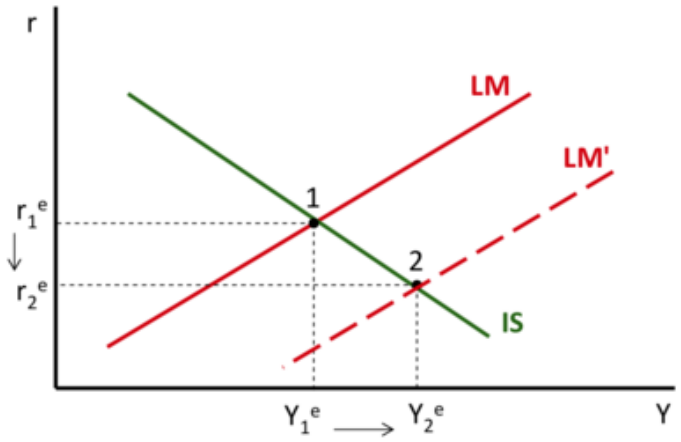


Government decides to increase public spending to stimulate the economy, leads to a rightward shift of the IS curve from IS to IS', resulting to an increase in interest rate from r_1^e to r_2^e and increase in output from Y_1^e to Y_2^e.

$$G \uparrow \rightarrow Y \uparrow \rightarrow M^d \uparrow \rightarrow r \uparrow \rightarrow I \downarrow$$

Y increases less than if r did not increase

Effects of an expansionary monetary policy:



An increase in money supply leads to a rightward shift of the LM curve from LM to LM', resulting to a decrease in interest rate from r_1^e to r_2^e and increase in output from Y_1^e to Y_2^e.

. $$M^s \uparrow \rightarrow r \downarrow \rightarrow I \uparrow \rightarrow Y \uparrow \rightarrow M^d \uparrow$$

r decreases less than if M^d did not increase

Effects of Contractionary Monetary and Fiscal Policy

contractionary fiscal policy - A decrease in government spending or an increase in net taxes aimed at decreasing aggregate output (income) (*Y*).

$$G \downarrow \text{or} \, T \uparrow \rightarrow Y \downarrow \rightarrow M^d \downarrow \rightarrow r \downarrow \rightarrow I \uparrow$$

Y decreases less than if r did not decrease

contractionary monetary policy A decrease in the money supply aimed at decreasing aggregate output (income) (*Y*).

$$M^s \downarrow \rightarrow r \uparrow \rightarrow I \downarrow \rightarrow Y \downarrow \rightarrow M^d \downarrow$$

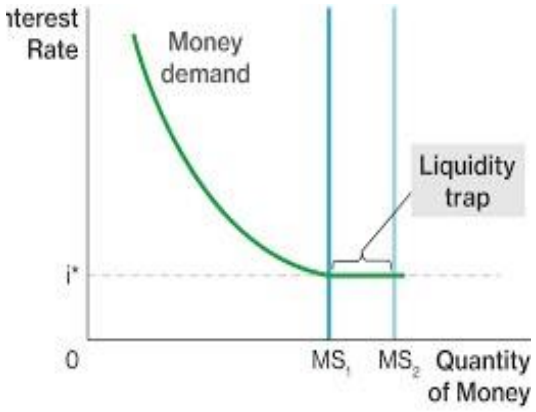
r increases less than if M^d did not decrease

Effectiveness of Monetary Policy vs. Fiscal Policy in the IS-LM Model

It is important to explain to what extent monetary policy is effective in influencing level of national output. When Central Bank adopts an expansionary monetary policy, the rate of interest falls which causes increase in total spending or aggregate demand (especially, investment expenditure). Finally, the aggregate output adjusts to the changes in aggregate demand. The relative effectiveness of fiscal and monetary policy depends on the slopes of the IS and LM curves.

Case 1. The Liquidity Trap

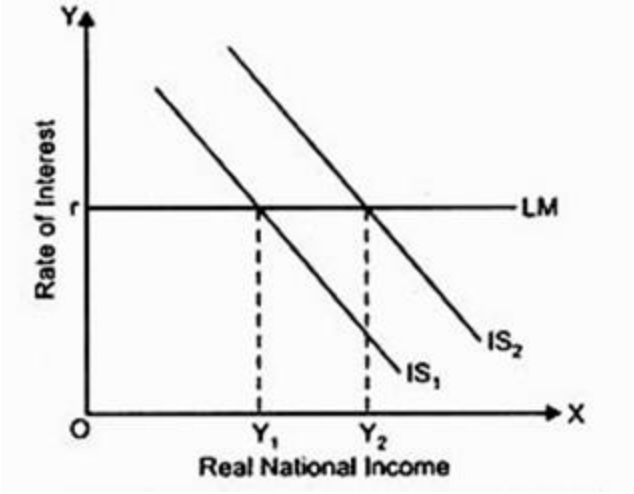
Some linkages in transmission process of the effect of changes in money supply may not work. First, the change in money supply may not lead to a change in rate of interest. According to John Maynard Keynes, liquidity trap may occur at a very low interest rate and prevents the fall in rate of interest following the increase in money supply. The liquidity trap is a situation in which the public is prepared at a given rate of interest to hold whatever money is supplied.



As shown in the above figure, demand for money is perfectly elastic (liquidity trap portion) and LM curve is a horizontal straight line, with a horizontal LM curve, the increase in money supply does not cause a shift in it and therefore does not affect the rate of interest. With rate of interest remaining unaffected, the expansion in money supply will not affect the aggregate spending (both consumption and investment demand). With no change in aggregate demand on spending, the level of national output will remain unchanged. Thus, in the situation of liquidity trap "monetary policy is powerless to affect the interest rate."

However, with a horizontal LM curve, an increase in government spending causes a shift in the IS curve to the right and therefore, affects the level of output from Y_1 to Y_2. As seen in figure below, rate of interest remains fixed and as a result there is no crowding out effect and the national income increases by the full multiplier effect of increase in government expenditure.

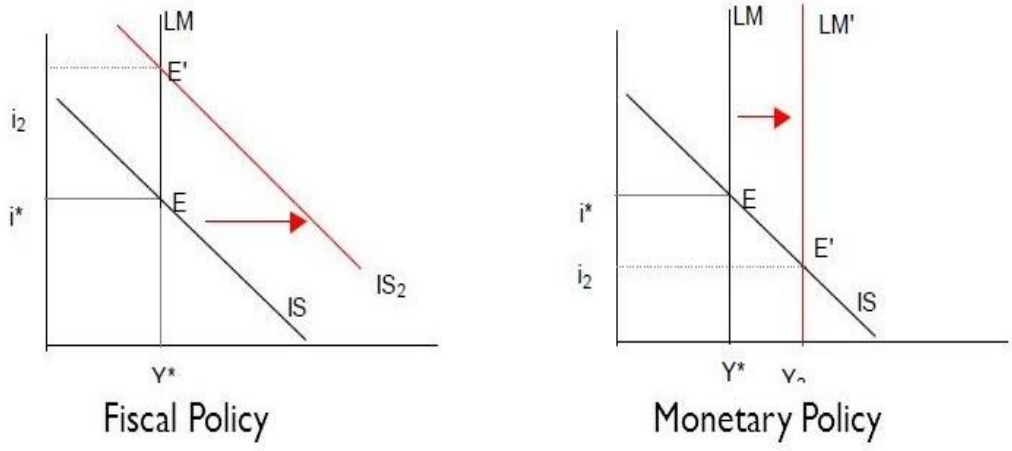
A horizontal LM curve depicting liquidity trap in the demand for money that resulted in a no crowding out effect of fiscal stimulus is an extreme case. This may occur when there is severe depression in the economy.



Therefore, the more sensitive money demand to interest rates, the flatter the LM curve. Fiscal policy is more effective than monetary policy.

Case 2. The demand for money is interest inelastic

Classical economists believe that the demand for money only depends on income. A vertical LM curve shows that the demand for money is unresponsive to interest rate.



Expansionary fiscal policy, that is, increase in government expenditure or cut in taxes has no effect on the level of real income when the LM curve is vertical as shown in figure above (left side). This is a classical case where fiscal stimulus provided by increase in government spending increases only the interest rate which crowds out private investment equal to the increase in government expenditure times the multiplier. As a result, level of national income remains unaffected at Y^*. Thus, with a vertical LM curve (i.e., zero interest -responsiveness of demand for money), there is full or complete crowding out.

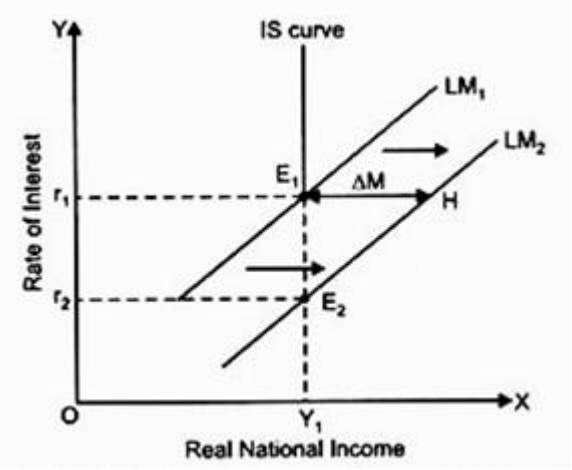
Expansionary monetary policy, that is, an increase in money supply increases output from Y^* to Y_2 and causes interest rates to fall from i^* to i_2.

Therefore, the steeper the LM curve, the less effective fiscal policy is. Monetary policy is more effective.

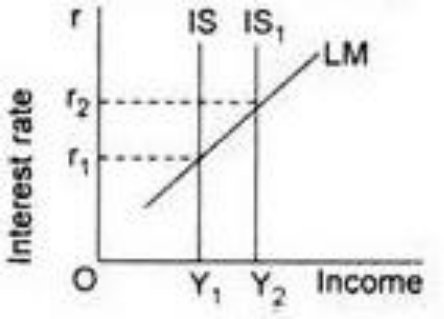
Case 3. Investment is interest inelastic

The third factor causing ineffectiveness of monetary policy occurs in the third step of transmission mechanism, namely, changes in aggregate spending or demand in response to changes in interest rate. This happens when changes in rate of interest have insignificant effect on autonomous planned spending, especially investment expenditure. This situation occurs when business firms are so pessimistic about the future prospects of earning profits that they are reluctant to undertake any further investment in response to lower interest rate.

An expansionary monetary policy shifts the LM curve to LM_2. An increase in money supply causes a lower interest rates but does not lead to the increase in real national income, that is, output is fixed at Y_1



An expansionary fiscal policy shifts the IS curve to IS_1. An increase in government expenditures or a tax cut results a higher real national income from Y_1 to Y_2.



Therefore, when the IS curve is steep, fiscal policy is relatively more effective than monetary policy.

IS-LM-BP or Mundell-Fleming model

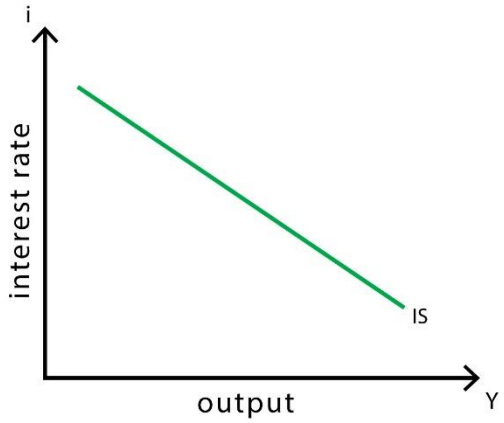
The IS-LM-BP model is an extension of the IS-LM model, which was formulated by the economists Robert Mundell and Marcus Fleming, who made almost simultaneously an analysis of open economies. The Mundell-Fleming model is a version of the IS-LM model for an open economy.

The model shows that governments have to choose two of the following three policy aims: (1) domestic monetary autonomy (the ability to control the money supply and set interest rates and thus control growth); (2) exchange rate stability (the ability to reduce uncertainty through a fixed, pegged, or managed regime); and (3) capital mobility (allowing investment to move in and out of the country).

Goods Market or the IS curve

The market in which goods and services are exchanged and in which the equilibrium level of aggregate output is determined.

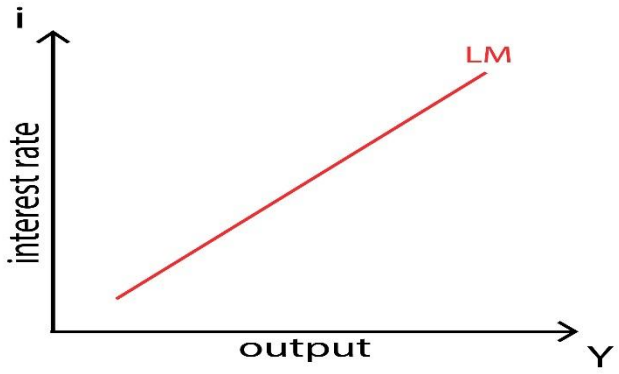
The IS curve (I for investment and S for savings) summarizes all the combinations of income and interest rates that ensure equilibrium on the goods market



Money Market or the LM Curve

The market in which financial instruments are exchanged and in which the equilibrium level of the interest rate is determined.

The LM curve (L for liquidity and M for money supply) summarizes all the combinations of income and interest rates that ensure equilibrium on the money market



The Balance of Payments

Private individuals, firms and government agencies of one country transact business with other persons, businesses and governments in other countries. These transactions are known as **international transactions or payments**. The Balance of Payments summarizes all international transactions that a country makes. The Balance of Payments is divided into three accounts; Current Account, Capital Account and Overall BOP Position.

The Balance of Payments (BOP) is a summary of the economic transactions of a country for a specific period of time with the rest of the world. It serves as an accounting statement of the economic dealings between **residents** and non-residents of a country.

Any transaction may represent an inflow or an outflow. An inflow is a credit item and represents the supply or an addition to foreign currency (foreign exchange reserves) while an outflow is a debit item and represents the demand for foreign currency or a reduction in foreign exchange reserves.

The Balance of Payments may be used as an indicator of economic and political stability of a country. For example, if a country has a consistently positive BOP, this could mean that there is significant foreign investment within that country. It may also mean that the country does not export much of its currency.

The **Current Account** consists of trade and transfers. This account measures the net transfer of real resources between the domestic economy and the rest of the world. Trade refers to transactions merchandise or goods and non-merchandise or service involving exports and imports of merchandise items are the commodity items that can be seen under exports and imports. Balance of trade is the difference between a country's imports and its exports. Balance of trade is the largest component of a country's Balance of Payments. Debit items include imports, foreign aid, domestic spending abroad and domestic investments abroad since these represent an outflow of foreign currency. Credit items include exports, foreign spending in the domestic economy and foreign investments in the domestic economy which represent an inflow of foreign currency. A country has a trade deficit if it imports more than it exports; the opposite scenario results to a trade surplus. (Current account surplus, current account deficit).

Transfers include remittances of Overseas Filipino Workers, interest and royalties received from investment from other countries which also represent an inflow of foreign currency.

The Capital and Financial Account is divided into two main categories: the capital account and the financial account. The capital account covers capital transfers and acquisition/disposal of non-produced, non-financial assets while financial account covers transactions associated with financial assets and liabilities.

The Overall BOP Position can be a surplus, a deficit or a balance. A BOP surplus arises when inflows are greater than outflows while a BOP deficit is incurred when outflows exceed inflows. When inflows and outflows are equally matched, the BOP position is in balance. Operationally, the BOP position is computed using two approaches: (i) as the sum of the balances in the current, capital and financial accounts (referred to as above-the-line items); or (ii) as the change in the net international reserves that is attributed to transactions (referred to as below-the line items). Ideally, both approaches should yield the same result. However, because of data limitations particularly in the first approach, the overall BOP position is determined using the second approach and any discrepancy between the two approaches is termed as Net Unclassified Items.

Net Unclassified Items (or errors and omissions) is an offsetting account to bring above-the-line and below-the-line into balance. Discrepancy arises because data sources are inadequate or inconsistent with one another in terms of coverage, time of recording and valuation. A positive discrepancy or Net Unclassified Items denotes an understatement of inflows and/or an overstatement of outflows. Conversely, a negative entry denotes an overstatement of inflows and/or understatement of outflows

Cash Account or international Reserve Account

The cash account is a balancing item, if the total payment exceeds the total income in the current and the capital account; there is decrease in the balancing amount. In other words, it shows the net outflow of foreign reserves. The errors and omissions adjust the statistical discrepancies. A country receives international cash reserve in the following forms:-

1. The foreign currency is received when the quantity sold abroad exceeds the quantity purchased abroad.
2. Gold purchased or mined in the country itself.
3. The deposit with the International Monetary Fund (IMF).

Balance of Payments Deficit

This happens when all the payment outflows exceed inflows. It means that the country's international reserves are falling in order to pay for the deficit.

Balance of Payments Surplus

The surplus of foreign currency will increase the country's asset holdings and that the surplus will eventually cause the accumulation of new reserves of foreign currency.

BP Curve

The BP curve shows the various combinations of interest rates and income levels for which the Current Account (CA) and the Capital Account (KA) offset each other (i.e. the Balance of Payments is in equilibrium).

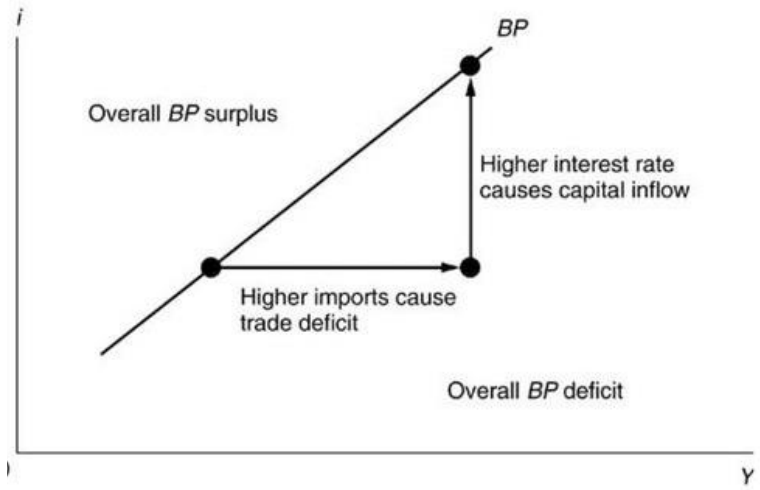
Current account is equivalent to the level of net exports, X-M. Exports are affected by foreign income and exchange rate while imports are affected by the domestic level of income and exchange rate. As the domestic level of income rises, imports rise while exports stay constant. Thus, as income rises (with e remaining unchanged), NX falls, therefore the CA falls.

Capital Account is determined by the factors that affect capital flows between countries: the rate of return on comparable assets. By assuming that foreign interest rates (i*) are constant and that there are no expectations that the exchange rate will change, a rise in domestic interest rates will attract capital here (K inflow) while a fall in domestic interest rates will attract capital to foreign countries (K outflow).

The BP curve shows combinations of income (Y) and interest rates (i) where balance of payments is at equilibrium, which means that the volume of net exports that affect total production must be consistent with the volume of net capital outflows. It is usually upsloping since the higher the income, the higher the imports, which will disturb the equilibrium of the balance of payments, unless interest rates rise (which would cause capital inflows to maintain the equilibrium). However, depending in how great the mobility of capital is, it will have a greater or smaller slope: the higher the mobility, the flatter the curve.

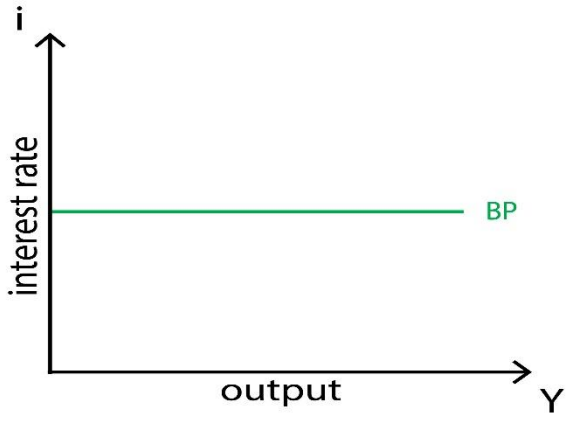
BALANCE OF PAYMENT RELATIONSHIP

- Increase in income must be accompanied with the rise in the interest rate differential to maintain the BP=0
  - Rise in income implies rise in import, widening trade deficit. Higher interest rate in domestic country should attract more capital inflow, to fill in the gap and to bring the BP to equilibrium
- The slope of the line depends inversely on the degree of capital mobility (k) – the larger the k, the flatter BP line
  - If k is small, BP line is steep – it would take a large increase in the interest rate to attract the required capital inflow
  - What would be the slope of BP line if k=0?



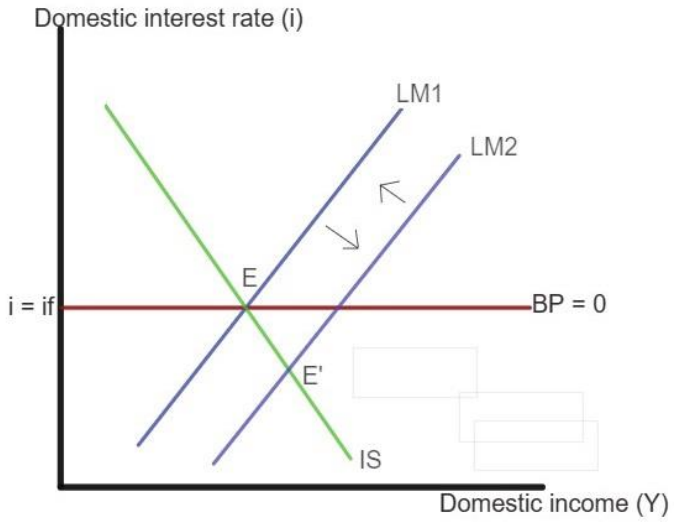
Any point above the BP curve will mean a balance of payments surplus. Any points below the BP curve will mean a balance of payments deficit.

The BP is perfectly horizontal when capital is perfectly mobile. This situation occurs when financial assets are perfect substitute across countries. Any small deviation in the domestic interest rate from the foreign interest rate results in an infinite amount of capital flows. If the domestic interest rate is lower than the foreign interest rate, there are an infinite amount of capital outflows. If the domestic interest rate is higher than the foreign interest rate, there are an infinite amount of capital inflows.

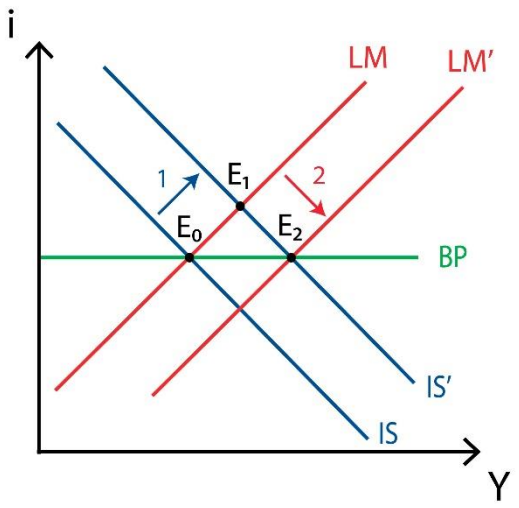


Effectiveness of Monetary and Fiscal Policy in the IS-LM-BP Model

1. Perfect Capital Mobility under Fixed Exchange Rate



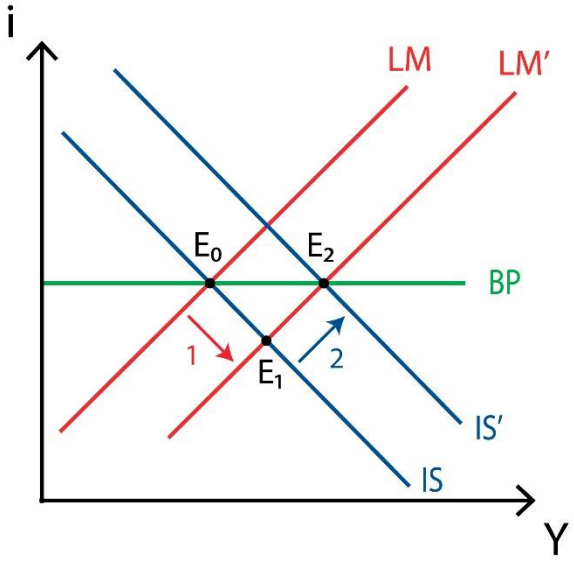
An expansionary monetary policy will shift the LM1 curve to LM2, which makes the equilibrium go from point E to E'. However, since E' is below the BP curve, the economy has a balance of payments deficit. Since exchange rates are fixed, government intervention is required: the government will purchase domestic currency and sell foreign currency, which will drop the money supply and therefore shift the LM2 curve to its original position (which makes the equilibrium go to E). Monetary policy has therefore no effect to the level of output at this condition.



An expansionary fiscal policy will shift the IS curve to IS', moving the equilibrium point from E_0 to point E_1. Since the economy has now a balance of payments surplus, and because the exchange rate is fixed, government will intervene by purchasing foreign currency and sell domestic currency. This will increase the money supply, shifting the LM curve to the right from LM to LM'. The final equilibrium is reached at point E_2 where, at the same interest rate, the level of output has increased greatly: fiscal policy works perfectly under these circumstances.

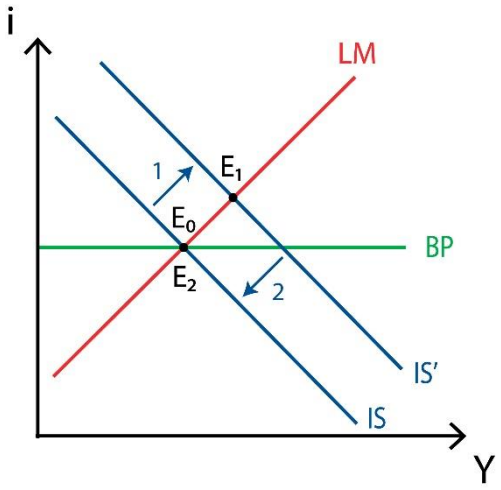
Therefore, under a fixed exchange rate regime with perfect capital mobility, fiscal policy is effective than monetary policy.

2. Perfect Capital Mobility under Flexible Exchange Rate



An expansionary monetary policy will shift the LM curve to LM', which makes the equilibrium go from point E_0 to E_1. However, since now exchange rates are flexible, the balance of payments deficit will

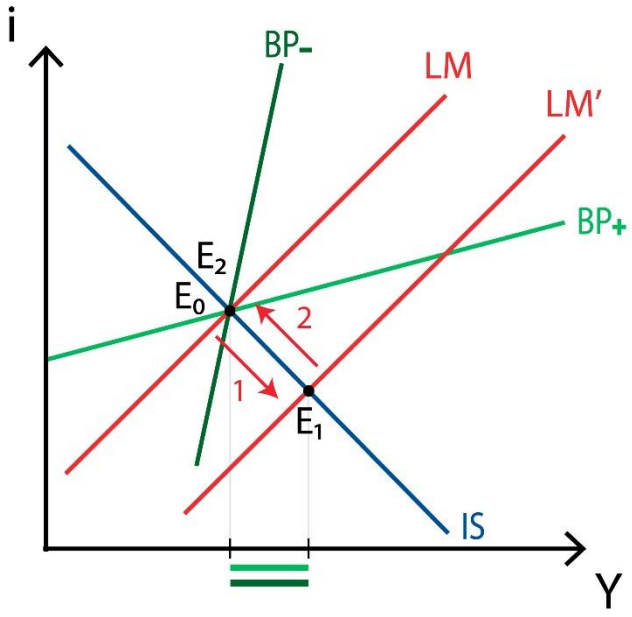
depreciate the domestic currency. This will increase net exports (since foreigners can now buy more of the domestic products with the same amount of money), which will shift the IS curve to the right (to IS'). The final equilibrium is reached at point E_2 where, at the same interest rate, the level of output has increased greatly: monetary policy works perfectly under these circumstances.



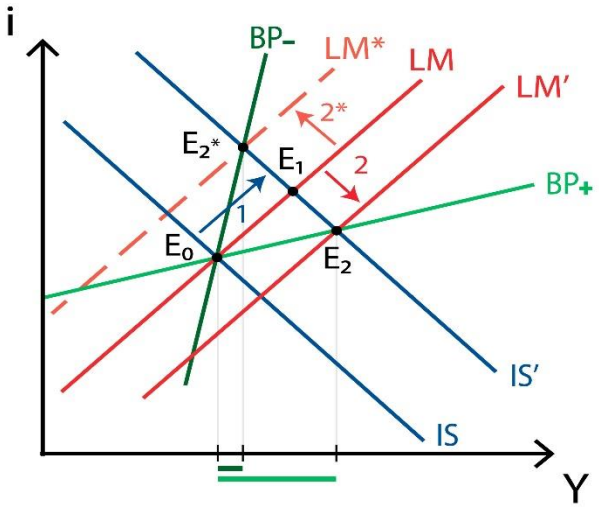
An expansionary fiscal policy will shift the IS curve to IS', moving the equilibrium from point E_0 to point E_1. The economy will therefore have a balance of payments surplus, which results to the appreciation of the domestic currency. This will decrease net exports, since the country is able to import more goods and services with less money, while foreigners will import less of the domestic products because of the appreciation of domestic currency. This drop in net exports will shift the IS' curve back to its original position. Since now the final equilibrium E_2 corresponds to the initial equilibrium, fiscal policy is no good in this case.

Therefore, under a flexible exchange rate regime with perfect capital mobility, monetary policy is effective than fiscal policy.

3. I**mperfect Capital Mobility Under a Fixed Exchange Rate**



An expansionary monetary policy will shift the LM curve to LM', which makes the equilibrium go from point E_0 to E_1. However, since E_1 is below the BP curve, the economy has a balance of payments deficit. Since exchange rates are fixed, the government will purchase domestic currency and sell foreign currency, which will drop the money supply and therefore shift the LM' curve to its original position (which makes the equilibrium go to E_2). Monetary policy has no effect, no matter how great or small capital mobility is (i.e. relatively elastic BP+ curve and inelastic BP- curve).



An expansionary fiscal policy will shift the IS curve to IS', moving the equilibrium from point E_0 to point E_1. Now, depending on capital mobility, we'll either have a balance of payments surplus (high capital mobility, BP+ curve) or a balance of payments deficit (small capital mobility, BP- curve). Since exchange rates are fixed, government will need to intervene: its acquisitions and disposals of both domestic and foreign currency will shift the LM curve to either LM' or to LM*.

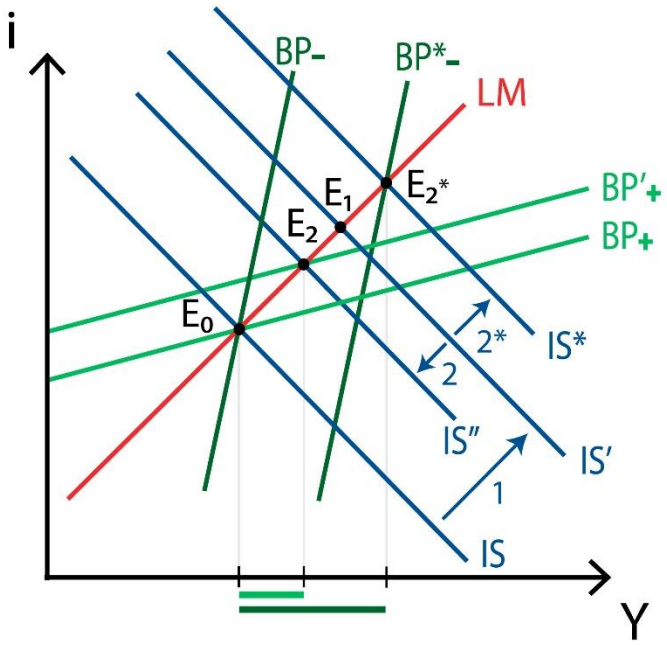
At high capital mobility, BP+ curve, the economy has now a balance of payments surplus at E_1, and because the exchange rate is fixed, government will intervene by purchasing foreign currency and sell domestic currency. This will increase the money supply, shifting the LM curve to the right from LM to LM'. The level of output changes (horizontal axis) from E_0 to E_2.

At small capital mobility, BP- curve, the economy has now a balance of payments deficit at E_1, and because the exchange rate is fixed, government will intervene by selling foreign currency and buy domestic currency. This will decrease the money supply, shifting the LM curve to the left from LM to LM*. The level of output changes (horizontal axis) from E_0 to E_{2^*}.

Under these circumstances, fiscal policy is completely efficient. It's actually more efficient in the high capital mobility, BP+ curve than small capital mobility, BP- curve.

Therefore, under a fixed exchange rate regime with imperfect capital mobility, fiscal policy is still effective than monetary policy.

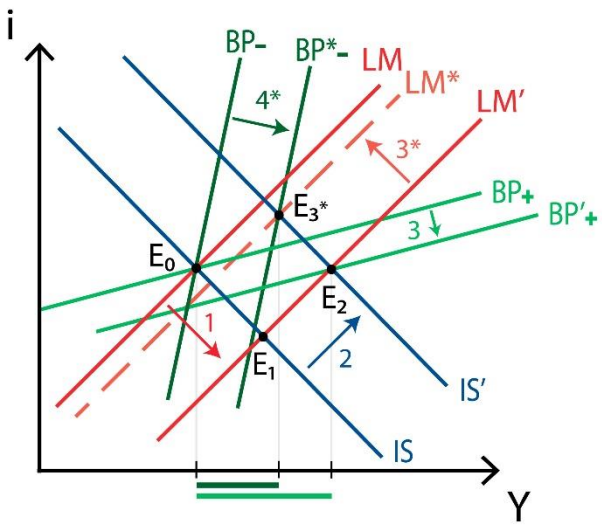
4. **Imperfect Capital Mobility Under a Flexible Exchange Rate**



An expansionary fiscal policy will shift the IS curve to IS', moving the equilibrium from point E_0 to point E_1. Now, depending on capital mobility, we'll either have a balance of payments surplus (high capital mobility, BP+ curve) or a balance of payments deficit (small capital mobility, BP- curve).

At high capital mobility, BP+ curve, the economy has now a balance of payments surplus at E_1, and because the exchange rate is flexible, there will be an appreciation of the domestic currency. This will decrease net exports, which will shift the IS' curve to the left to IS". Also, since domestic assets are more expensive, the BP+ curve will shift to the left to BP'+. The final equilibrium will therefore be at point E_2.

At small capital mobility, BP- curve, the economy has now a balance of payments deficit at E_1, and because the exchange rate is flexible, there will be a depreciation of the domestic currency. This will increase net exports, which will shift the IS' curve to the right to IS*. Also, since domestic assets are less expensive, the BP- curve will shift to the right to BP*-. The final equilibrium will therefore be at point E_{2^*}. In this scenario, fiscal policy will be more efficient at a small capital mobility, BP- curve than a high capital mobility, BP+ curve.



An expansionary monetary policy will shift the LM curve to LM', which makes the equilibrium go from point E_0 to E_1.

At high capital mobility, BP+ curve, the economy has now a balance of payments deficit at E_1, and because the exchange rate is flexible, there will be a depreciation of the domestic currency. This will increase net exports, which will shift the IS curve to the right to IS'. Also, since domestic assets are less expensive, the BP+ curve will shift to the right to BP'+. The final equilibrium will therefore be at point E_2.

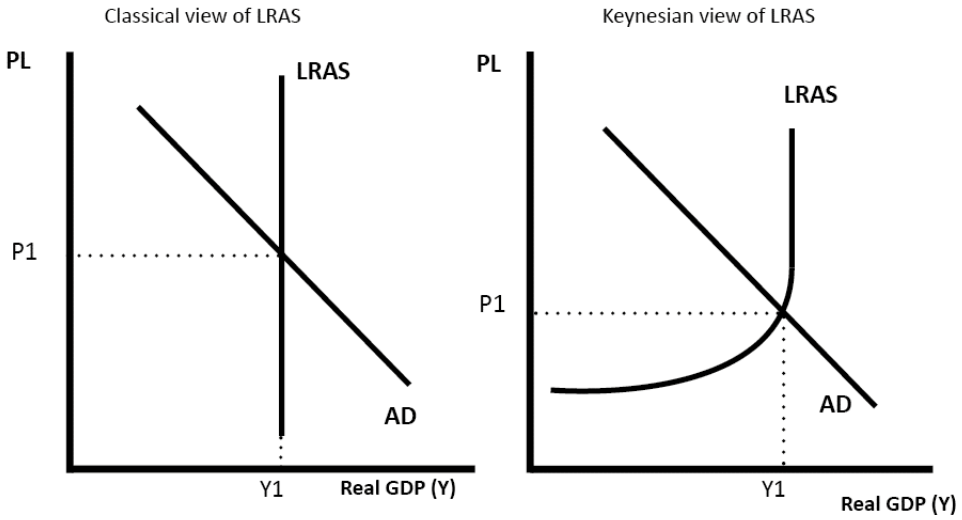
At small capital mobility, BP- curve, the economy has still a balance of payments deficit at E_1, and because the exchange rate is flexible, there will be a depreciation of the domestic currency. This will increase net exports, which will shift the IS curve to the right to IS'. Also, since domestic assets are less expensive, the BP- curve will shift to the right to BP*-. The final equilibrium will therefore be at point E_{3^*}.

In this scenario, monetary policy will be more efficient at a high capital mobility, BP+ curve than a small capital mobility, BP- curve.

Keynesian vs Classical models and policies

1. Long-run aggregate supply

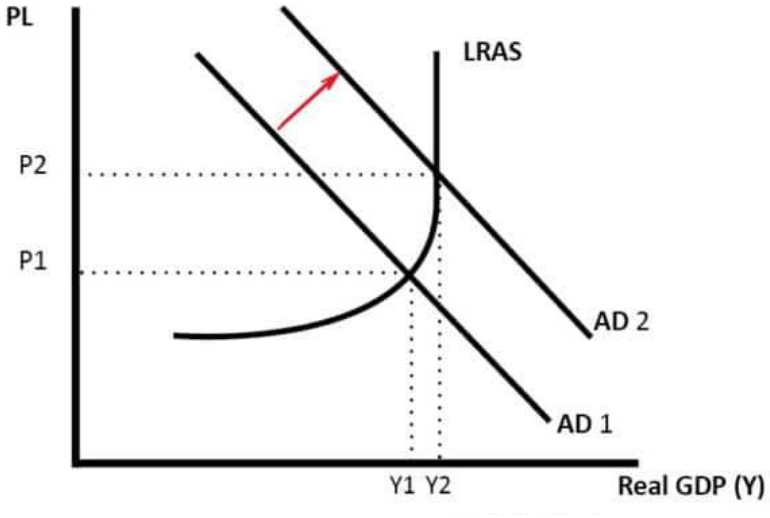
The difference between the Keynesian and classical view of macroeconomics can be illustrated looking at the long run aggregate supply (LRAS).



Classical view

The Long Run Aggregate Supply (LRAS) is inelastic. As prices of final good increase, workers would be asking for additional wage, thus, the increase in prices that sellers receive for their final goods is completely offset by the proportional increase in the prices that firms pay for inputs. The result is that the supply of real GDP is not affected by the changes in the price level. The long run supply curve is the natural level of real GDP or level of output that arises when the economy is *fully employing all* of its available resources. This has important implications. The classical view suggests that real GDP is determined by supply-side factors – the level of investment, the level of capital and the productivity of labor. Classical economists suggest that in the long-term, an increase in aggregate demand (faster than growth in LRAS), will just cause inflation and will not increase real GDP.

Keynesian view



The Keynes argue that the economy can be below full capacity in the long term due to the following

- Wages are sticky downwards (labor markets don't clear)
- Negative multiplier effect. Once there is a fall in aggregate demand, this causes others to have less income and reduce their spending creating a negative knock-on effect.
- A paradox of thrift. In a recession, people lose confidence and therefore save more. By spending less this causes a further fall in demand.

Keynesians argue greater emphasis on the role of aggregate demand in causing and overcoming a recession.

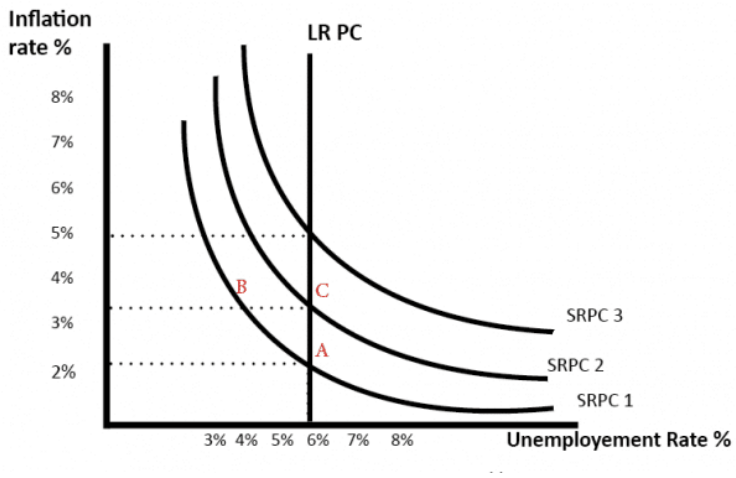
2. Demand deficient unemployment

Because of the different opinions about the shape of the aggregate supply and the role of aggregate demand in influencing economic growth, there are different views about the cause of unemployment

- Classical economists argue that unemployment is caused by supply side factors – real wage unemployment, frictional unemployment and structural factors. They downplay the role of demand deficient unemployment.
- Keynesians place a greater emphasis on demand deficient unemployment. Unemployment is partly due to insufficient economic growth and low growth of aggregate demand (AD)

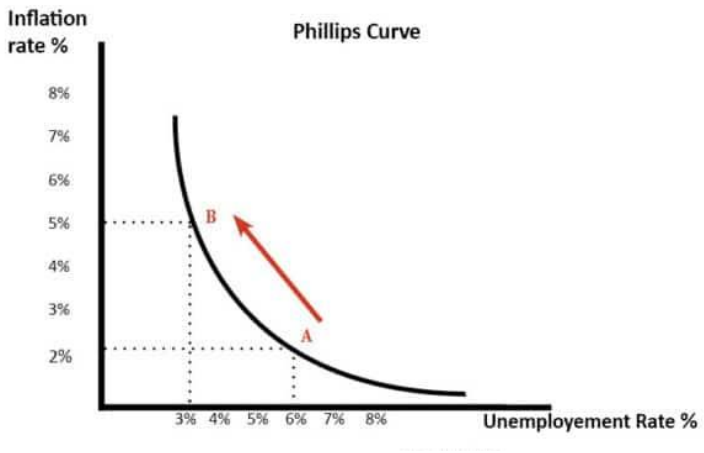
3. Phillips Curve trade-off

A classical view rejects the long-run trade-off between unemployment and inflation, suggested by the Phillips Curve.



Classical economists say that in the short term, you might be able to reduce unemployment below the natural rate by increasing AD. But, in the long-term, when wages adjust, unemployment will return to the natural rate, and there will be higher inflation. Therefore, there is no trade-off in the long-run

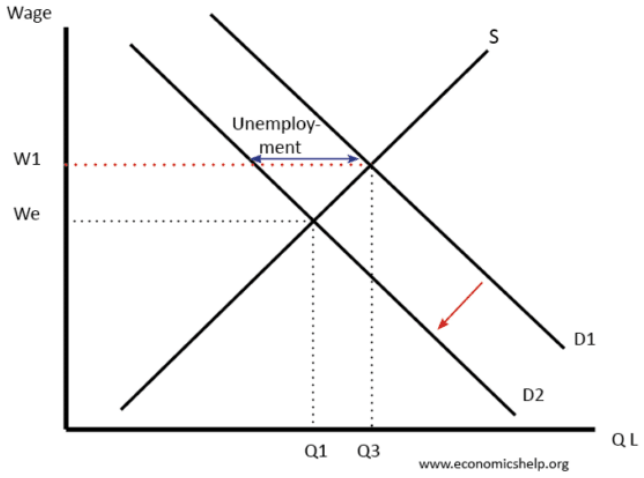
Keynesians believe that there can be a trade-off between unemployment and inflation.



In a recession, increasing AD will lead to a fall in unemployment, though it may be at the cost of higher inflation rate.

4. Flexibility of prices and wages

Classical economists believe that prices and wages are flexible, and in the long-term markets will be efficient and clear. For example, suppose there was a fall in aggregate demand, in the classical model this fall in demand for labor would cause a fall in wages. This decline in wages would ensure that full employment was maintained and markets 'clear'.



A fall in demand for labor would cause wages to fall from W_1 to W_e

Keynesians argue wages are often inflexible. In particular, wages are 'sticky downwards'. Workers resist nominal wage cuts. For example, if there were a fall in demand for labor, trade unions would reject nominal wage cuts; therefore, in the Keynesian model, it is easier for labor markets to have disequilibrium. Wages would stay at W_1, and unemployment would result.

5. Rationality and confidence

- Classical economics assumes that people are rational and not subject to large swings in confidence.
- Keynesian economics suggests that in difficult times, the confidence of businessmen and consumers can collapse – causing a much larger fall in demand and investment. This fall in confidence can cause a rapid rise in saving and fall in investment, and it can last a long time – without some change in policy.

Policy Recommendations of Classical and Keynesian

1. Government spending

- The classical model is often termed 'laissez-faire' because there is little need for the government to intervene in managing the economy.
- The Keynesian model makes a case for greater levels of government intervention, especially in a recession when there is a need for government spending to offset the fall in private sector investment.

2. Fiscal Policy

- Classical economists places little emphasis on the use of fiscal policy to manage aggregate demand because they believe on the use of money supply, through monetary policy.
- Keynesian economics suggests governments need to use fiscal policy, especially in a recession.

3. Government borrowing

- Classical economists focus on the importance of reducing government borrowing and balancing the budget because there is no benefit from higher government spending. Lower taxes will increase economic efficiency.
- The Keynesian view suggests that government borrowing may be necessary because it helps to increase overall aggregate demand.

4. Supply side policies

- The classical view suggests the most important thing is enabling the free market to operate. This may involve reducing the power of trade unions to prevent wage inflexibility. Classical economics is the parent of 'supply side economics' – which emphasizes the role of supply-side policies in promoting long-term economic growth. Example of these policies are removing regulation, promoting competition among firms, providing incentives for firm, maintaining an efficient legal system and encouraging technological progress.
- Keynesian don't reject supply side policies. They just say they may not always be enough. e.g. in a deep recession, supply side policies can't deal with the fundamental problem of a lack of demand.

EXERCISES AND ASSESSMENT

1. Table below gives three sets of IS and LM equations. (a) Rank these sets in terms of the effectiveness of a given fiscal policy. Explain your ranking. (b) Rank these sets in terms of the effectiveness of a given monetary policy. Explain your ranking.

Equations	Set 1	Set 2	Set 3
IS equation	Y=P650-1000i	Y=P650-1000i	Y=P650-1000i
LM equation	Y=500+500i	Y=500	Y=540+100i

2. Show graphically the effect of contractionary monetary and fiscal policy to the interest rate and the level of output.

3. Explain why expansionary monetary policy is more effective at a high capital mobility than a small capital mobility while expansionary fiscal policy is more effective at a small capital mobility than a high capital mobility.

LESSON 8

ISSUES IN MONETARY POLICY

Learning Outcomes*: At the end of this chapter, students are expected to:*

1. *Expound the understanding regarding the pros and con of monetary policy and fiscal policy*
2. *Discuss the advantages of adopting rule over discretion*
3. *Decide which is more applicable solution during monetary crisis*

Pros and Cons of Monetary Policy

Pros

1. **Interest Rate Targeting Controls Inflation**

   A small amount of inflation is healthy for a growing economy as it encourages investment in the future and allows workers to expect higher wages. Inflation occurs when the general price levels of all goods and services in an economy increases. By raising the target interest rate, investment becomes more expensive and works to slow economic growth a bit.

2. **Can Be Implemented Fairly Easily**

   Central banks can act quickly to use monetary policy tools. Often, just signaling their intentions to the market can yield results.

3. **Central Banks Are Independent and Politically Neutral**

   Even if monetary policy action is unpopular, it can be undertaken before or during elections without the fear of political repercussions.

Cons

1. **Effects Have a Time Lag**

   Even if implemented quickly, the macro effects of monetary policy generally occur after some time has passed. The effects on an economy may take months or even years to materialize.

   The delay between the time a macroeconomic problem arises and the time at which policy makers become aware of it is called a **recognition lag**. Recognition lags stem largely from problems in collecting economic data. Data are available only after the conclusion of a particular period.

   Only after policy makers recognize there is a problem that can they take action to deal with it. The delay between the time at which a problem is recognized and the time at which a policy to deal with it is enacted is called the **implementation lag**.

Policy makers at the Central Bank still have to contend with the **impact lag**, the delay between the time a policy is enacted and the time that policy has its impact on the economy. The impact lag for monetary policy occurs for several reasons. First, it takes some time for the deposit multiplier process to work itself out. The Central Bank can inject new reserves into the economy immediately, but the deposit expansion process of bank lending will need time to have its full effect on the money supply. Interest rates are affected immediately, but the money supply grows more slowly. Second, firms need some time to respond to the monetary policy with new investment spending—if they respond at all. Third, a monetary change is likely to affect the exchange rate, but that translates into a change in net exports only after some delay. Thus, the shift in the aggregate demand curve due to initial changes in investment and in net exports occurs after some delay. Finally, the multiplier process of an expenditure change takes time to unfold. It is only as incomes start to rise that consumption spending picks up.

2. The Risk of Hyperinflation

When interest rates are set too low, over-borrowing at artificially cheap rates can occur. This can then cause a speculative bubble, whereby prices increase too quickly and to absurdly high levels. Adding more money to the economy can also run the risk of causing out-of-control inflation due to the premise of supply and demand: if more money is available in circulation, the value of each unit of money will decrease given an unchanged level of demand, making things priced in that money nominally more expensive.

Pros and Cons of Fiscal Policy

Pros

1. **Can Direct Spending to Specific Purposes**

Government can direct spending toward specific projects, sectors or regions to stimulate the economy where it is perceived to be needed to most.

2. **Can Use Taxation to Discourage Negative Externalities**

Taxing polluters or those that overuse limited resources can help remove the negative effects they cause while generating government revenue.

Cons

1. **May Be Politically Motivated**

Raising taxes can be unpopular and politically dangerous to implement.

2. Can Create Budget Deficits

A government budget deficit is when it spends more money annually than it takes in. If spending is high and taxes are low for too long, such a deficit can continue to widen to dangerous levels.

Rules versus Discretion

A rule requires that monetary policy is essentially automatic: it involves a precise prescription for how monetary policy should react to a set of economic circumstances. One example of a monetary policy rule is the constant-money-growth rule advocated by Milton Friedman, in which the money supply is set by the central bank to grow at a constant rate. A more recent alternative is the Taylor rule that suggests that the Central Bank should raise rates when inflation is above target or when gross domestic product (GDP) growth is too high and above potential. It also suggests that the Central Bank should lower rates when inflation is below the target level or when GDP growth is too slow and below potential.

Discretion on the other hand involves monetary policy makers setting their policy instruments on a day-to-day basis as economic events unfold, with no public commitments about its objectives or actions.

Factors in Considering Rule over Discretion

1. Time inconsistency. The time inconsistency problem calls for the use of a policy rule in order to reduce the chance that the monetary policy-makers will change their policy after people in the private sector have taken their actions.

2. Clearer explanations. If a policy rule is simple, it can make explaining monetary policy decisions to the public or to students of public policy much easier. It is difficult to explain why a specific interest rate is being chosen at a specific date without reference to a method or procedure such as would be described by a policy rule. The use of a policy rule can mean a better educated public and a more effective democracy.

3. Less political pressure. A policy rule is less subject to political pressure than discretionary policy. If monetary policy appears to be run in an ad hoc rather than a systematic way, then politicians may argue that they can be just as ad hoc and interfere with monetary policy decisions. A monetary policy rule which shows how the instruments of policy must be set in a large number of circumstances is less subject to political pressure every time conditions change.

4. Reduction in uncertainty. Policy rules reduce uncertainty by describing future policy actions more clearly. The use of monetary policy rules by financial analysts as an aid in forecasting actual changes in the instruments would reduce uncertainty in the financial markets.

5. Greater accountability. Policy rules for the instrument settings allow for more accountability by policy-makers. Because monetary policy works with a long and variable lag, it is difficult simply to look at inflation and determine if policy-makers are doing a good job.

COMPREHENSIVE EXAMINATION

Encircle the letter of the correct answer

1. The classicists argue that money supply affects
   a. The unemployment rate c. economic growth
   b. The price level d. real interest rate

2. In the classical model, the aggregate supply curve is vertical line because it assumed that
   a. The economy is always in equilibrium c. the inflation rate is zero
   b. Output is unrelated to price level d. velocity is stable

3. The origins of modern monetarism lie in the work of the
a. Keynesians b. Classical Economists c. Mercantilism d. Alfred Marshall

4. Economist who said that "inflation is always and everywhere a monetary phenomenon".
a. John Maynard Keynes b. Milton Friedman c. Irving Fisher d. Alfred Marshall

5. The speculative demand for money emphasizes the function of money as
a. A standard of deferred payment c. a medium of exchange
b. A store of value d. a unit of account

6. According to Keynes, the key difference between money and bonds is that
a. Money is an asset b. money is less risky c. bonds are tax exempt d. all of the above
7. For a given demand for money, a decrease in the money supply will
a. Reduce the level of interest rate c. lower the price of bonds
b. Raise investment spending d. all of the above

8. The equilibrium level of income occurs in the Keynesian model
a. At full employment c. at any output level
b. When government spending equals taxes d. when consumption equals savings

9. A balance of payments _____ is associated with a _____ of international reserves.
   a. deficit; loss b. deficit; gain c. surplus; loss d. balance; gain

10. A commercial bank with total liabilities of P100 million and demand deposits of P80 million must, in order to meet a 10% reserve requirement, hold reserves of at least.
a. P800 Million b. P100 Million c. P10 Million d. P8 Million

11. A company wishes to raise funds immediately, without increasing its debt, should
a. Sell bonds to the public c. buy government securities
b. Sell general obligation funds d. issue new common stock

12. Assume that reserves equal P50 Million and demand deposits equal P200 Million. If reserve requirement are 20%, excess reserves equal
a. P50 Million b. 0 c. P20 Million d. P10 Million

13. The money market specializes in
a. Cash transactions c. short-term securities

b. Disintermediation d. financial dissemination

14. If velocity and output are fixed at 5 and 100, respectively, and the price level is at 10, then money supply must be
a. 10 b. 200 c. 1000 d. 100

15. The transaction demand for money emphasizes the function of money as
a. A store of value c. a standard of deferred payment
b. A medium of exchange d. a unit of account

16. An increase in the money supply will
a. Shift the demand schedule to the right c. shift the demand schedule to the left
b. Leave the aggregate demand schedule unaffected d. reduce the general price level

17. For a given demand for money, a decrease in the money supply will
a. Raise the level of interest rates c. lower the price of bonds
b. Reduce investment spending d. all of the above

18. Monetary policy is more effective when
a. The demand for money is highly interest-sensitive c. the marginal propensity is high
b. The investment function if highly interest sensitive d. all of the above

19. The LM curve can take any of the following positions except
a. Upward sloping to the right c. downward sloping to the left
b. Horizontal d. vertical

20. If the demand for money were totally insensitive to the level of interest rates, then
a. The LM curve would be vertical c. a and b
b. The velocity of money would be constant d. none of the above

21. The aggregate demand schedule will shift to the right if
a. Fiscal policy is contractionary c. monetary policy is expansionary
b. The IS curve shifts to the left d. the LM curve shifts to the right

22. If an economy is already experiencing inflation, efforts to reduce unemployment by stimulating aggregate demand are most likely to cause:
a. the unemployment rate to rise in the short run
b. the inflation rate to accelerate
c. a decline in the price level, coupled with a sharp increase in unemployment
d. real income to expand, but money income is likely to remain unchanged

23. A problem created after the transaction
a. asymmetric information b. moral hazard c. adverse selection d. b and c

24. A reduction in money supply will
a. shift the LM curve to the left b. shift the aggregate demand schedule to the right
c. shift the aggregate supply to the left d. all of the above

25. The steeper the IS curve
a. the more effective fiscal policy is and the less effective monetary policy is
b. the more effective monetary policy is and the less effective fiscal policy is
c. the more effective are both fiscal and monetary policies

d. the less effective are both fiscal and monetary policies

26. Which of the following actions by the BSP is likely to be contractionary?
a. decreasing reserve requirements b. decreasing the discount rate
c. selling bonds in the open market d. decreasing margin requirements

27. One would definitely expect the quantity of money demanded to increase if:
a. interest rates were decreasing and total spending was increasing
b. the supply of money was decreasing
c. interest rates were increasing and total spending was falling
d. everyone were paid daily instead of once or twice a month

28. All of the following are advantages of inflation targeting, except
a. Simplicity and clarity of target b. Rely on stable money-inflation relationship
c. Increased accountability of the central Bank d. Reduced effects of inflationary shocks

29. An interest rate target is preferred than monetary target if:

a. the LM curve is more unstable than the IS curve. b. the IS curve s more unstable than LM curve
c. the IS curve and LM curve are both stable d. the LM curve is stable but not the IS curve

30. A financial market in which securities that has been previously issued can be sold.
a. primary market b. secondary market c. money market d. initial public offering

31. For monetary targeting to be successful in achieving its goals;
a. there must be a stable money-inflation relationship.
b. monetary authorities should be transparent with their actions.
c. velocity must increase because of the financial innovation in the economy
d. a or c

32. Which of the following is most accurate in reflecting the "monetarist" view of the effectiveness of macroeconomic tools?
a. discretionary fiscal and monetary policy are very effective
b. nondiscretionary monetary policy is preferred
c. fiscal policy is very powerful
d. wage and price controls are preferred to fiscal policy

33. Open-market purchases of government securities by the BSP will have the tendency to
a. increase interest rates, the money supply, and national income
b. increase interest rates and the money supply, but decrease national income
c. increase interest rates, but decrease the money supply and national income
d. all of the above

34. Generally recognized as a sign of a policy favoring tighter money is a
a. rise in the money supply c. rise in the discount rate
b. reduction of the required reserve ratio d. rise in government bond purchases by the BSP

35. Which of the following best describes the Keynesian cause-effect chain of an easy money policy?
a. an increase in the money supply will lower the interest rate, increase investment spending, and increase GDP
b. an increase in the money supply will raise the interest rate, decrease investment spending, and decrease GDP
c. a decrease in the money supply will raise the interest rate, decrease investment spending, and decrease GDP
d. a decrease in the money supply will lower the interest rate, increase investment spending, and increase GDP

36. If the BSP authorities were attempting to reduce inflationary pressures, the proper policies would be to government securities, reserve requirements, and the discount rate.
a. sell; raise; lower b. sell; lower; lower c. buy; raise; raise d. sell; raise; raise

37. In the Classical Model, the major determinant of saving is:
a. the interest rate b. the level of income c. the age composition of the population d. the income tax rate

38. A decrease in legal reserve requirements will tend to _____ the money supply and _____ commercial bank loans. a. reduce; reduce b. reduce; increase c. increase; increase d. increase; decrease

39. Which of the following will increase the supply of bonds (shift the supply curve to the right)?
a. A business cycle expansion c. An increase in the bond prices
b. A government budget surplus d. A decrease in the expected inflation rate

40. A rise in the demand for loanable funds, other factors held constant, is equivalent to a
a. rise in the supply of securities c. fall in the demand for securities
b. rise in the demand for securities d. fall in the supply of securities

41. A problem created after the transaction
a. asymmetric information b. moral hazard c. adverse selection d. b and c

42. Wage and price flexibility in the Classical model plays the role of ensuring
a. constant velocity b. full employment c. stable prices d. economic growth

43. Suppose that the money supply is constant and the demand for money is a function of income and the rate of interest. If the level of income increases, there is
a. An increase in the quantity of money demanded and an increase in the rate of interest.
b. An increase in the quantity of money demanded and a decrease in the rate of interest
c. A decrease in the quantity of money demanded and a decrease in the rate of interest.
d. A decrease in the quantity of money demanded and an increase in the rate of interest.

44. At a bond price above the equilibrium
a. there is an excess demand and the price will tend to fall. c. there is an excess demand and the price will tend to rise
b. there is an excess supply and the price will tend to fall. d. there is an excess supply and the price will tend to rise.

45. Government bond are default-free because:
a. the government is trustworthy c. the government has always paid back whatever it borrowed in the past
b. the government can always raise cash through taxes in order to pay back its creditor d. all of the above

46. Which of the following will cause a movement along the demand curve for bond J?
a. An increase in the price of bond K. c. An increase in the price of bond J.
b. An increase in the risk of bond J. d. An increase in the risk of bond K

47. The supply of loanable funds is determined by
    a. the flow of savings into financial institutions c. changes in the level of bank reserves
    b. the BSP's monetary policy d. all of the above

48. Demand deposits are money because they are:
    a. legal tender b. acceptable in exchange c. token money d. full-bodied money

49. In the equation of exchange, if M = $200, P = $2, and Q = 300, then
    a. V must be 3 b. V must be 4 c. V must be one-half
    d. the value of the goods and services produced in the economy must be $300

50. Suppose that you deposit $2,000 cash in your checking account at a commercial bank. If the bank is fully loaned up, and if the required reserve ratio is 10 percent, what is the maximum amount that the bank can lend?
    a. $200 b. $1,800 c. $2,000 d. $18,000

Good Luck and God Bless!!!!!!!

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